JOURNAL OF GAS LIGHTING, WATER SUPPLY, &c.

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VOL. CI., No. 2336.—TUESDAY, FEBRUARY 18, 1908.

EDITORIAL NOTES—GAS, &c.

A Many-Featured Meeting.

THERE was satisfaction on the countenances of the proprietors of the South Metropolitan Gas Company as they left the meeting last Wednesday. The proceedings had been of anything but a commonplace order. And, what is more, the whole of the large audience had heard from Sir George Livesey the confidence-inspiring account of the half-year's operations and of the prospects of the Company, and they had heard, too, the whiz of the barbed shafts that he had been directing against the rating authorities (and their advisers) in the Company's district The proprietors of the Company have not always heard what they went to hear at their meetings. This has been a matter of complaint. But the Directors have now removed the cause of complaint by changing the scene of meeting from one where din and space made the presence of the unfortunates on the borders of the big gathering a waste of time, to one where there is composure and distinct hearing by all. In this respect, therefore, there was no disappointment on the present occasion.

Many were the subjects upon which Sir George had to dilate. Some were pleasant, some otherwise; but among the latter were topics that he felt the duty of position and the public interests demanded should be exposed firmly and without equivocation. Sir George has been interested in several campaigns on behalf of the gas industry in the past, but never has he been involved in one that obviously in his view has had a larger measure of justice impelling attack than that on which he is now engaged in connection with the making of valuations. In the light of subsequent events, what justification can be advanced for a large part of the action that led the South Metropolitan Company very properly into conflict with the assessment authorities at Quarter Sessions, and what justification is there for the expenditure of such large sums as £10,000 by the Company and £5000 by the assessment authorities in prosecuting and opposing that appeal? The greater part of the money—drawn from the purses of gas consumers and ratepayers—has gone into the pockets of valuers and other professional men. Sir George made a trenchant and satirical attack upon a system that appears to have no bounds in the matter of lucrativeness; and it is only right the public and the gas consumers should know something more about these things than they have done. It is essentially a public question; but the usual channels of public information pay more heed to the seamy side of daily life than to the more prosaic details that are really of greater general importance to the community. Respecting Sir George's remarks as to gas officials appearing on a side in opposition to the interests of the industry, all that need be said here is that no man can properly serve two masters—one of whom has a direct interest in imposing as high a financial burden as possible upon the other, though in doing so the burden has to be finally distributed among those who are primarily the electors of the rating authorities. Life, it has been said, is made up of paradoxes; and certainly there is one here. On the main question, however, we cannot conceive that an official gas engineer, who has on more than one occasion given support to the cases of rating authorities against gas companies, would be of very much use as a witness for his own Company if the occasion arose for them to resist an unduly high assessment.

Had there not been this large but properly incurred expenditure in fighting this rating question, the South Metropolitan Company would have had a balance in hand more than sufficient to meet their dividend obligations; or had the meter indices been taken a little later, again the balance would have sufficed. Bearing in mind that the former was an extraordinary circumstance, that the latter is merely incidental to administrative convenience, and that the Directors have not been by any means parsimonious in their expenditure on maintenance, the results of the half-year's trading assume a greater excellence than the presentment of the bare figures in the accounts—though over the accounts hang the shadows of the heavy cost of coal, and the rise of 3d. per 1000 cubic feet (to 2s. 3d.) in the price of gas to the consumers. Under all the general and local circumstances, Sir George looks upon the increase of 1·36 per cent. in the sale of gas as good; and Mr. Carpenter towards the close of the meeting strengthened, by illustration, the point already made in these columns as to the large volume of gas represented by small percentage increases in the case of the mammoth supplying concerns. As Sir George says, the wonder is there is any increase in consumption at all in these days when domestic incandescent gas-burners are being reduced to smaller units, and when an efficiency by ordinary inverted burners can be obtained of 25 candles per cubic foot of gas in contrast with 2 to 3 candles per cubic foot with flat-flame burners—an increase in efficiency of at least eight times. Electricians, or rather the more intemperate and daring of them, may make the postulatory statement that the Osram lamp has brought down the cost of electric lighting to a lower level than incandescent gas lighting; but we flatly deny the truth of the assertion, which can, if the electricians so desire, be put to practical trial. Speaking of the increased efficiency in the matter of illumination per cubic foot of gas used in the inverted burner, it is interesting to note from Mr. Carpenter's remarks that these burners are being experimented with for street lighting in South London. With such highly efficient means of using gas for lighting purposes, gas at any ordinary prices is cheap; at 2s. 3d.—the South Metropolitan price—it is particularly so. It has been a salient line in the policy of the South Metropolitan Company to supply gas at the cheapest possible price, and not accumulate large undivided balances. The public have had the advantage of this policy, and beyond their fair proportion under the parliamentary sliding-scale, while the proprietors—though dividends of 5½ per cent. as in the past and 5⅓ per cent. as now cannot be regarded as bad—have gone short of the amount to which they are entitled. This, of course, it cannot be contended is equitable under the circumstances of a low-priced Company such as this; and this is well illustrated at the present time. The consumers have been getting their gas at 2s.; the proprietors have not received their full dividend. The cost of raw material has compelled a threepenny increase in price; but notwithstanding that the proprietors have not been paid their full dividend during the whole of the 2s. price period, there is, under the operation of the sliding-scale, a compulsory descent of dividend by 3s. 4d. per cent. But there is to be no more of this. While 2s. is the price to which the Company will make every effort to work, there are not to be future reductions without the proprietors and consumers can alike share in the benefit within (for the proprietors) the legal limits. Some Companies are so circumstanced that it is not wise to insist on a rigid regulation of dividend by the operation of the sliding-scale; but, in (among many others) the case of the South Metropolitan Company, it is not so—at any rate, up to the point (say) of a 2s. price. When in a rating appeal it is charged against a Company as a fault that they have given the public the benefit of a considerable reduction in price—the public being the constituents of the rating authorities—it causes one to deliberate as to the expediency of self-sacrifice when a higher price is safe for competitive purposes. To say the least, it is discouraging.

Before dealing with one or two personal questions, there is one (so we regard it in the interests of the industry) important matter to which Mr. Carpenter referred at the meeting. Those who watch gas accidents, know how much that old abomination the water-slide chandelier, through neglect, is responsible for these deplorable occurrences. At the time of the little crop of tragedies caused through such

old-fashioned fittings in 1906, we wrote (Aug. 14): "The "unfortunate accidents that have recently happened through "the continued use of old water-slide chandeliers are not "to the interest of gas-lighting; and it is high time that gas "suppliers made some special effort to rid the houses of "their consumers of these death-dealing survivals of a past "period in artificial illumination." This is a matter that has been taken up by the South Metropolitan Company in their district; and they have converted thousands of these chandeliers, free of expense to the consumers, into safe and artistic fittings. The example is worth imitation. A little expense in this way is better than the disrepute which fatality brings.

There are changes on the Board. Death has removed the well-known figure of Mr. Simpson Rostron; and retirement on pension of one of the Workman-Directors, Mr. J. A. Butcher, has caused a change in the employees' representation. Mr. H. T. Manley is the successor of the latter. But an election to the Board that meets with the cordial approbation of all classes of proprietors, including officials and workmen, is that of Mr. Frank Bush, Secretary to the Company for over a period of a quarter of a century. We can say nothing that was not said by the Chairman (himself an old official) as to Mr. Bush's fealty and unwearying work in the interests of the Company, nor of his peculiar fitness for the office of Director. The difference between an imperious official in high position and the official of the sympathetic nature of Mr. Bush was impressed by the forest of hands and the cheering from the assembled proprietors—particularly of the officers and workmen proprietors—which on Wednesday ratified the resolution transporting him from the office of Secretary to that of Director. With the proprietors we hope that his presence on the Board will be of long duration; of the value of his services, there is no manner of doubt. To his worthy successor in the office of Secretary—Mr. F. M'Leod—we can wish nothing better than a like success and the honourable career that have brought such distinction upon his predecessor. There is one point about the retirement of Mr. Butcher that was raised by Sir J. Fortescue Flannery, and to which further attention may be given by the Board. It is that he sees no reason why the Company should, because a Workman-Director feels the time has arrived for retiring on his pension from active daily work, lose the value of his experience as a Director, for which position he is not intellectually incapacitated. There is something in what Sir Fortescue advances; but, in our opinion, that something is not sufficient to serve as compensation for the value of having an intelligent and diplomatic employee director living in daily intercourse with his fellow-workers. One of the underlying principles of co-partnership is participation not only in the fruits of industry but in the duties of management; and there can only be that direct participation in the latter by representation drawn from the midst of, and in actual daily contact with, the workers. For these reasons alone, we should plead for the maintenance of the present conditions.

Lower Coal Prices.

THE coal boom is breaking; and though colliery owners would fain obscure the whole truth as long as possible, the facts are too strong for them. As our coal market reports have shown, there have been reductions in quotations; but the current quoted prices hang together by the merest threads, which are readily snapped by sellers rather than lose a contract of any substantial amount. The ebb of the trade tide, reduced requirements for industrial purposes, drooping exports, the easing off of deliveries on current contracts, and so forth, are all operating against the coal proprietors sustaining prices at any uniform level—even at the reported reduced figures; and consequently, in the business now being arranged, there is, though it is not publicly proclaimed, very pronounced irregularity in prices. From the coal-buying centres, we hear of contracts having been effected at 11s. 3d. and 11s. 6d. f.o.b. for good class Durham gas coals; 11s. we know has also been accepted; and in another case 10s. 9d. is reported. There are several foreign gas-works as buyers in the market just now, and we do hope they will not fall into the sellers' hands at prices higher than there is any necessity to pay. When we hear of coal vendors taking early steps to ingratiate themselves with concerns who have to complete contracts betimes in the year, by making offers somewhat below quotation, it is a sign of which full advantage should be taken.

Of course, it is not anticipated that there will be any immediate reversion to old prices; so far as can be presaged at the present time, it does not seem possible that some of the old prices are likely to ever recur, more particularly in view of the permutable conditions in the coal mines. But the administrations of big British gas undertakings are, we believe, expecting to make contracts in the coming season at certainly not above 10s., and it is hoped that prices will even go below that figure. Some of the sellers of the higher class coal are still hanging out for 12s. to 12s. 6d.; but such prices can be rejected off-hand. Under the circumstances, gas undertakings that may be compelled to purchase for early delivery will be assisting—by making full and careful inquiries in all directions in order to get bed-rock prices before committing themselves—to bring prices to their bottom level before the approaching contract season. Certain it is, the coal owners will not pay out the rope they drew in last year any faster than is compulsorily necessary. In considering the causes that are bringing about lower prices for coal, the singular truth crosses the mind that, when trade is not at its best, then, in residential districts, is the best time for gas suppliers and consumers; in industrial districts, different conditions prevail which somewhat modify the effect. At the same time, when trade is not at its best, then cheap fuel is the more acceptable in all industries.

The Responsibility of Official Engineers.

IN the gas industry we remember with sympathy the explosion, on Dec. 20, 1906, of a thermal storage drum which wreaked such dire result at the Greenwich station of the South Metropolitan Electric Light and Power Company. The report of Mr. A. A. Hudson, Barrister-at-Law, and Mr. J. H. Hallett, Consulting Engineer, the Commissioners appointed by the Board of Trade to inquire into the explosion, has been issued, and was briefly noticed in the "JOURNAL" for Jan. 28 (p. 251); and not only for the reason that boilers and their appurtenances are important features of gas-works, but because of the lessons it contains as to the responsibilities of official engineers, the report should arrest the serious attention of every member of the gas profession. The report has both a technical and a personal side; and the one dovetails into the other. Generally speaking, with regard to the personal side, the feeling in professional circles is that the report is too caustic and sweeping; and that a tribunal such as this appointed by the Board of Trade is not a proper one before which to bring to judgment men's acts and reputations—and men whose previous professional life has been unblemished. Whether or not the constitution of the tribunal is unfit for the purposes, the fact has to be accepted that the inquisitorial functions of the Board are not limited to the purely technical aspects of a case, but, through the technical investigation, responsibility and blame (if any) can be apportioned, as well as the costs incurred in making the investigation. These monetary inflictions are therefore very much in the nature of penalties. Whether or not the power to (so to speak) blame, censure, and fine in the hands of the Board and those whom they commission to conduct inquiries for them is a danger (as some declare has been proved in the present case), is too big and general a question for discussion here. But, while we are far from desirous of condoning neglect, we do agree that the Commissioners appear, under the circumstances of the case, to have been unnecessarily severe in their criticism, though, on the other hand, the officials concerned do not show up in the clearest light as having been sufficiently apprehensive of danger, in view of all the warnings given.

Look at the outline of the circumstances. Here was a new steel thermal storage drum, 5 feet in diameter by 24 feet long. It had only been in use for four months. Before leaving the works of Messrs. Babcock and Wilcox, it had been tested up to 240 lbs. to the square inch by hydraulic pressure, and again up to 230 lbs. at the works of the Electric Company. Its working pressure was 80 lbs. lower—viz., 160 lbs. But the one was a dead-load and the other a live-load; and it is quite conceivable that any incipient cracks there were in the back end-plate of the drum (in which the defects that resulted in the disastrous explosion existed) would be increased by the application of the live load, or, to put it in the words of the Commissioners, the increase might be "partly due to the panting movement in "the drum caused by variations of the temperature and "the pressure in the drum, arising from various causes." Moreover, the drum had passed the inspection of the Boiler

Insurance Company. Furthermore, two Board of Trade Engineers (Mr. T. Carlton and Mr. H. J. Vose) who inspected the boiler state in the report they have made that, with the exception of some indentations (made by a hydraulic riveter, which was used as a press to force the flange of the end and the shell plates together) "the work in the drum was "apparently of the highest class, and there was evidence "both in the design and workmanship that no expense had "been spared to turn out good work."

Considering these various points, one cannot to an extent avoid the feeling that misplaced confidence is excusable; but when the leakage of steam was observed—and this is where the officials were to blame—there was, according to the report, delay in looking for the source, and, when it was found, no one appears to have realized the possibility of fatal danger, or to have taken steps to shut down the boiler or reduce the pressure, though a jet of steam about a foot long and ¾ inch in diameter was issuing. The Electricity Engineer (Mr. Bowden), though neither he nor the Resident Engineer (Mr. Constable) did anything in the meantime to ensure safety, thought the occasion serious enough to send for Mr. Shaw, an Inspector of the Boiler Insurance Company, to examine the boiler; and it was when Mr. Shaw was preparing to make his inspection that the explosion occurred, and he unfortunately was a victim—the force of the explosion being such that the drum, with the front end attached, was projected almost horizontally a distance of 95 feet into the adjoining gas-works, penetrating in its course three stout brick walls (the third being 2 feet thick) before it came to rest. We need not go into the minutiæ concerning the formation of the cracks. The indentations already referred to and the cracks were due to one and the same cause—the, apparently, rough use of a hydraulic riveter in pressing together the flange of the end and the shell plates; the indentations being described by one of the Inspectors of the Boiler Insurance Company as of an unusual and uncommon order. There was the bad end-plate; and for sending this out the Works Manager of Messrs. Babcock and Wilcox was adjudged responsible. Responsibility was therefore fixed upon the firm and their Works Manager, and upon the Chief Engineer and Resident Engineer of the South Metropolitan Electric Light and Power Company; and the costs they were respectively called upon to pay were £400, £50, £50, and £30. The money payment is of small account compared with the sullying of reputations. What is tantamount to censure is freely meted out in the report; and if there is any justification for the length to which it has gone, it is that the severity will be the more effective as a warning to engineers to act promptly upon the monitions of danger, rather than leave anything to chance.

Mr. Hunt on Vertical Retorts.

The little sketch that Mr. Charles Hunt gives us in another column of the chief of his impressions during an inspection of the vertical retort system that has so largely gained hold upon professional colleagues in Germany, is welcome and interesting so far as it goes. Mr. Hunt does not present his communication as a detailed examination of the system; otherwise he would have enumerated other valuable advantages that have frequently been referred to in our pages. From the recesses of memory comes the recollection that the day was when Mr. Hunt was a little bit sceptical over the vertical retort; but that was the day of crudity in design. As a professional man, however, he has a mind open to the reception of proved advantage. He tells us, from his investigations, of the great reduction of labour that has been effected by the vertical system; and how much he is impressed with what he saw is focussed in the words: "The figures indicate that almost, if not quite, the minimum of labour costs has been reached, while the ease with which the various operations are conducted and the comparative absence of discomfort are very marked." The simplicity of the methods of working also struck him; and what he gathered as to low illuminating power and well-sustained calorific power present to his mind one solution of the problem of how to maintain calorific power while reducing illuminating power. But there remains the awkward fact (frequently been remarked in these columns), that we cannot, however much we are in the frame of mind for it, drop with such a swoop to the lower illuminating powers; and the day seems to be still far off when gas supply will be unregulated by the now irrational standard of illuminating power. There are many other points about vertical retort working in Germany upon which Mr. Hunt's views would have been very acceptable—such as relative capital costs and space occupied, the relative merits and makes of the 4 metre and 5 metre retorts, the increase of ammonia, the decrease of bisulphide of carbon, and so on. But he has confined himself to the more obvious points, not pretending (as said before) to enter into the subject comprehensively. The mistake must not be made that, in what he has said, Mr. Hunt is lauding the Dessau system, and leaving his readers to suppose that he is decrying others.

To Unite the Workers to the Business at Tottenham.

The temerity of the Directors of the Tottenham and Edmonton Gas Company in reducing the price of gas at the beginning of last year with dearer raw materials in front, has been completely justified. The reduction has been recouped, and something besides. The business continues to expand by notable strides; and more carbonizing plant and a new gasholder are among the immediate necessities. The fertile district never allows the Engineer and Manager (Mr. A. E. Broadberry) to relax his labours. The statement made by the Chairman (Mr. Corbet Woodall), at the meeting on Saturday, as to the increase of the rateable value of the Company's hereditament, and the extent to which the authorities have "climbed down," is a striking comment on the irregularities in valuation methods as exercised on behalf of rating authorities. But of all the statements made by him, the one that will whet curiosity most is the announcement he made that "before the proprietors meet again, the Directors will have considered a method whereby they will bring both officers and workmen more closely into touch with the operations of the Company."

Reduction of Price and Reduction of Illuminating Power.

In our correspondence columns, Mr. Arthur Valon contributes a few personal reflections on the proposal to procure for the gas industry generally the advantages of the new test-burner. The advantages are several; but only one supposed disadvantage can be brought to bear in opposition. Mr. Valon is not by any means against the new test-burner; but he is moved, by the most commendable feeling, to suggest that the change should be made in such a way as to prevent injustice being done to consumers. Mr. Valon, however, falls into the error of all those who presume to take up the defence of the consumer in respect of this matter of the money value of the reduction of illuminating power, compared with the old testing means that are inefficient for present-day lower illuminating powers, in treating the question as though the price charged to the consumer is a settled one for a fixed quality. It is, of course, nothing of the kind. The price charged in every town to-day is the result of a number of factors, of which illuminating power is only one; and the same conditions that have brought about the present prices will continue to bring about changes in price, and the new burner will render aid always in the direction of benefit to the consumer. Had it not been for the new test-burner, probably prices in London would have been higher than they have been during the present enhanced cost of raw materials. But who is it who is really affected in any way by differences in illuminating power that the use of the new burner as a standard may effect? The reply is only those who deliberately abstain from taking advantage of scientific progress in illumination; and then those, in common with the gas consumers of more advanced notions, receive their proportion in any reductions in price that may be effected by economies, towards which the new burner contributes. In the case of a large number of companies, the sliding-scale and competition is an adequate protection in this matter; and in the case of municipal authorities who do not grab considerable profits in aid of the rates, competition (where the authorities are not owners of the electricity supply) will also prove to be a corrective of any fancied injustice to the consumer. If Mr. Valon desires to do some really effective work in bringing about justice for all gas consumers, let him attack the problem of how to ensure, in the case of those local bodies who treat the gas undertaking as a milch cow, and also control the electricity supply, that the consumers at any rate get some advantage from their adoption of the new test-burner. Those bodies are a law unto themselves; and how many are using the new burner now with no one to say "Yea" or "Nay," and the consumers are none the wiser, nor feel themselves a penny the worse? In the case of companies, the new burner will assist in automatically reducing

prices. Let all descend from the finical to the practical level in considering this matter. There has been a reduction in the illuminating power in South London and elsewhere; and the new burner has been adopted for testing. A fairly considerable inquiry among consumers assures us that their accounts have not fluctuated in any manner to attract their attention; and when they are spoken to of reduced illuminating power and the new test-burner, they shrug their shoulders as an indication of a desire not to be bored by questions they do not understand, and which have not produced any influence that has been noticeable by them. And these are the people—indifferent, undisturbed, and uninjured—to whom Mr. Valon, in the seclusion of his office, is so solicitous that injustice shall not be done, though he knows full well that, by the sliding-scale and competition, with a few municipal exceptions, they are well and fully protected.

Bromley and Crays Amalgamation.

The principal authorities in the Bromley district have been satisfied by the Directors of the Bromley Gas Consumers' Company on points in the Bill that is being promoted, the chief object of which is to effect, on terms already agreed, the amalgamation of the Crays Gas Company with the larger Company. As a consequence, in view of the money savings from opposition, the consumers in the Bromley district will before long be rejoicing in a 2d. reduction in the price of gas. That was the most important announcement made at the meeting of the proprietors last Tuesday by the Chairman (Mr. Alexander Dickson). The Crays authorities, however, are making unreasonable requests regarding a quick passing to uniformity of price in the amalgamated district. It is to be hoped that they will not press the matter to a parliamentary contest. If they do, we shall be inclined to prophesy, with precedent before us, that they will suffer defeat, and cause an unnecessary waste of money. One of the concessions made by the Directors to the Bromley authorities is the relinquishing of the clause providing for ½-candle margin in connection with penalty testing, as obtains in the neighbouring South Suburban Company's area.

The Brentford Testing Question.

The report of the proceedings at the meeting of the Brentford Gas Company will afford good reading for the proprietors; and it is conceded on all hands that, in connection with the improvements effected, a large amount of praise is due to the Engineer and Manager (Mr. Alex. A. Johnston) for the energy and skill he has displayed. Some general remarks were made by the Chairman (Mr. Ulick J. Burke) on the litigation regarding the test-burner. As the matter is *sub judice*, he could not go into it critically; but he pointed out that, while their ancient Act prescribed a 15-hole argand for testing purposes, it adds "or other approved burner." It does not say by whom the burner is to be approved. The Board of Trade declare that it has nothing to do with them; and if it has nothing to do with them then it has nothing to do with anyone else. In view of the large and continued approval, session after session, of Parliament and the Board of Trade to the "Metropolitan" No. 2 burner, and in view of its prescription for the Metropolitan Gas Companies by the Gas Referees, the Directors of the Brentford Company with some reason say that this is an "approved burner," and they have a fancy for it rather than an obsolete and ill-defined burner of forty years ago. The decision of the Acton Bench was against them; but the Directors are going to see what the High Courts will say on the subject. It is an interesting point.

A Record Increase at Derby.

The meeting of the Derby Gas Company was an interesting function in more than one respect. In the first place, the Chairman (Colonel G. Gascoyne) was able to report, not only that the Company had done a much larger business, but that the proportion, or the ratio, of increase was much greater than in any previous year. During the twelve months to Dec. 31 last, the Company sold 772 million cubic feet of gas, as compared with 609½ millions made in 1906, or an increase of 162½ millions. This unprecedented increase was due partly to the Company having a much larger number of consumers for lighting, heating, and power purposes, and partly to supplying the Midland Railway Company's works since last May. In addition, there was included for the first time the gas sold in the districts formerly supplied by the Spondon and Etwall Gas Companies, whose undertakings have been acquired. The Directors are not even intending to stop at this point, for they have concluded terms for the purchase of the undertaking of the Belper Gas and Coke Company and the Milford Gas-Works; the shareholders having approved a Bill which is now before Parliament to enable this to be done.

The Price of Gas at Wandsworth.

Perhaps the most satisfactory feature of a generally satisfactory meeting of the Wandsworth and Putney Gas Company was the statement by the Chairman (Mr. H. E. Jones) that, in spite of the enhanced price of coal, the Directors had been able to retain the price of gas at the low figure of 2s. per 1000 cubic feet, and at the same time to recommend the payment of an undiminished dividend. Even the Directors themselves, it seems, were surprised at this favourable condition of affairs, seeing that many of the more important companies in the kingdom—some of them with "fatter" prices to deal with—were raising their charges for gas. The consumers at Wandsworth have not disappointed expectations—they have shown a very natural liking for cheap gas. As Mr. Jones remarked, the Board trusted the consumers would do their best for the undertaking if the price of gas was kept down; and the consumers had justified this belief in them. The result was that, in spite of a comparatively mild winter, the Directors were able to report an increase of 7 per cent. in the consumption. With facts like these before them, the shareholders in the Wandsworth and Putney Gas Company can have no cause to feel anything but the most lively satisfaction.

A Point in Compensation Law.

One of those points which seem to be continually cropping up in connection with workmen's compensation cases arose during the hearing some days ago of an action brought against the Stockport Corporation by the widow of a man who was employed at the gas-works, and who last December was found dead in the engine-house—the cause being, the Coroner's Jury declared, suffocation by inhalation of carbon monoxide. The sum claimed by the woman was £287; this amount apparently being made up of three years' wages at £1 4s. 4d. a week (he had been eight years at the gas-works), and a weekly sum over a similar period which he received in his capacity as steward of a club. The Corporation, on the other hand, contended that his earnings during the three years amounted to £184 and no more; and that his wages under any concurrent period of service into which he had entered at the time of his death could not be computed in his earnings. If, the Town Clerk said, the deceased had been employed less than three years, they would have had to take his average weekly earnings, in which case his wages as club steward could have been taken into consideration. As, however, he had been over three years at the gas-works, the compensation must be based on his actual earnings as an employee of the Corporation, and his earnings in any concurrent service could not be included. On behalf of the plaintiff, it was urged that it "was beyond commonsense, and manifestly absurd" that such a distinction should be possible in the cases of men who had been just under and just over three years in one employ; but the Judge replied that he was not at all impressed by the number of absurdities which might be pointed out in the Act. In fact, he remarked that the question was only one of many very curious points that could be found in the Act. His reading of the Act was that the Corporation were right in their contention that, where the service was more than three years, account could not be taken of wages earned in concurrent employment. The widow would therefore, he added, be worse off by £58 because her husband had worked for the Corporation more than three years.

Changing Westminster.

The face of Westminster is undergoing vast changes. Scenes to which one has been accustomed so long as recollection goes are vanishing. The changes range from Whitehall along Parliament Street, Great George Street, and an extensive area from there to the site formerly occupied by the Aquarium. A princely pile of Government buildings has been constructed in Parliament Street, on land formerly occupied by an ancient range of old-fashioned houses, in which, in days now far distant, consulting

engineers and parliamentary agents had their musty and what would be looked upon now as inconvenient offices, but which in those days seemed quite in keeping with professional work and habit. We remember in those offices among other occupants who have left their names in the gas industry's records that of Mr. R. P. Spice—the Hermit of Westminster; and in and out of them were frequently to be seen Mr. George Wilson Stevenson, Mr. T. G. Barlow, Mr. Thomas Hawksley, Mr. Alfred Penny, and others of the old school. Turning round into Great George Street, the building plans of the Government embrace the whole of the north side. If the scheme is carried out, the home of the Institution of Civil Engineers will have to go—a place in which the old British Association of Gas Managers and the former Institution of Gas Engineers held many an annual meeting, some more memorable than others. Passing along, memory goes back to the time when there was a closer identification of the offices of the Hawksleys with gas-works business, and to the days when Mr. George Anderson was a familiar figure passing to and from his offices near Storey's Gate. But in its buildings Westminster is on the up-grade. After the north side of Great George Street is dealt with, the south side follows; and some very handsome buildings are expected. In Tothill Street, near the Imperial Theatre, the comparatively young Institution of Electrical Engineers (who have been enjoying the hospitality of the Civils) have secured a site for a home of their own. A Gas House was a thing talked of many years ago. It is talked of no longer. The gas industry has a central professional body; but the gas industry does precious little to support it. A home for the Institution of Gas Engineers is something now altogether beyond our dreams; and every year, with values rising in and about Westminster—which is the chosen place of abode of the leading technical bodies—the securing of a suitable site becomes more difficult. We do not ask whether anything cannot be done for or by the Institution of Gas Engineers; there is a too confident belief that the answer would have to be in the negative.

Manchester and District Junior Gas Association.—There will be a debate on "Gas *v* Electricity" next Tuesday evening, at the Manchester School of Technology. Professor Harold B. Dixon, M.A., F.R.S., Professor of Chemistry in the Victoria University, will preside. The members of the Association will, of course, speak in support of gas, and the Manchester Students' Section of the Institution of Electrical Engineers will sustain the claims of electricity.

Midland Association of Gas Managers.—The annual general meeting of the Association will be held at the Acorn Hotel, Birmingham, on Thursday, the 27th inst. We learn from the Hon. Secretary (Mr. Charles Meiklejohn, of Rugby) that, in addition to the usual routine matters, the business will include the Presidential Address of Mr. Harold E. Copp, of West Bromwich; and a discussion on "Stoking Machinery," to be opened by Mr. Fletcher W. Stevenson, of Coventry. At the close of the meeting "high tea" will be provided.

Manchester District Institution of Gas Engineers.—The annual meeting of the Institution will be held at the Grand Hotel, Manchester, on Saturday, the 29th inst. We learn from the Hon. Secretary (Mr. H. Kendrick) that the business will include, in addition to the reports and balance-sheet, consideration of proposed alterations of rule, a presentation to Mr. W. Cawood (the Manager of the Manchester Gas Exhibition), the Presidential Address of Mr. T. Duxbury (Oldham), and papers by Mr. T. Newbigging and Mr. E. Frith (Runcorn).

Progress of the "D.B." Coal Projector and Discharging Machinery.—The Tottenham and Edmonton Gas Company have recently placed a repeat order for this machinery with Messrs. W. J. Jenkins and Co., Limited, of Retford. The firm are also engaged in supplying a second plant, consisting of stoking machinery and hot-coke conveyors, to the Metropolitan Gas Company of Melbourne, and a complete coal-handling plant and stoking machinery for the North Shore (Sydney) Gas Company. Repeat orders received from five different gas-works in the course of the past nine months speak well for the successful working of the original installations.

Illness of Mr. D. Irving.—At the recent meeting of the Bristol Gas Company, the Chairman (Mr. Alderman Dix) made some sympathetic references to the absence of the Engineer and Manager, Mr. D. Irving, on account of illness; but, by inadvertence, this was not recorded in the report which reached us. We regret to learn that Mr. Irving's illness has been very serious and of some weeks' duration, as he has not been able to attend to business since the middle of December. As soon as he could be moved he went to Bournemouth, where he has been staying for the past fortnight, and has so greatly benefited by the change that he hopes to return this week.

GAS STOCK AND SHARE MARKET.

(For Stock and Share List, see p. 444.)

THE Stock Exchange did not have a bright or cheerful time last week; markets in general seeming a prey to depression engendered of disappointed expectations. In some quarters an easier condition of things in the Money Market, and consequent increase in speculative activity, had been counted on. But the reverse actually happened; and things all round became listless and inactive, with drooping prices as a result. On the opening day, the tendency was unfavourable, and all markets felt the effect. On Tuesday, after quite as bad a start, there was a sudden recovery; so that the losses of the morning were all got back again, and in some lines a little more. Wednesday was very fair; a good point being Mr. Lloyd George's statesmanlike utterance upon Home Rails. On Thursday, however, there were fresh signs of relapse. Markets in general became highly sensitive—prices suffering accordingly. This led to a Friday of realizing; and in pretty well every department the tone was weak and despondent. Saturday was naturally very quiet, with lower prices where there was any movement at all. Thus Americans, which had been very shifty all the week, were rather better. In the Money Market, there was a strong demand in connection with the Stock Exchange (it being account-week); and in discount rates there was a steady disposition to harden. Business in the Gas Market was well up to the mark, being active and very buoyant; and a considerable number of undertakings made further advances in quotation. In Gaslight and Coke issues, the ordinary was in good demand; changing hands at from 99¾ to 100½ *cum div.*, and from 97½ to 98½ *ex div.* In the secured issues, the maximum was done at from 89⅓ to 90 *cum div.*; the preference at from 106¼ to 107½ *cum div.*, and 105½ *ex div.*; and the debenture at 83½ and 84. South Metropolitan was quiet, and rather easier, in view of the slightly reduced dividend. Prices marked were from 124 to 125¾ *cum div.*, and from 121¼ to 122½ *ex div.* Nothing was done in Commercial except one deal in the 4 per cent. at 108¾. In the Suburban and Provincial group, Alliance and Dublin old changed hands at 14⅜ and 14 7/16, Bournemouth "B" at 16⅝, Brighton original at 206 and 207, ditto "A" at 157½, British at 43¼, Bromley "B" at 90, and Southampton at 107½ and 108. The Continental Gas Companies were very quiet. Imperial was easier at from 180½ to 182½, European fully-paid marked from 22¾ to 23½, Union ordinary was higher at 115, and ditto preference realized 139. Among the undertakings of the remoter world, Bombay changed hands at 6⅜, Buenos Ayres at from 11⅝ to 11 7/8, ditto debenture at 94½, Cape Town debenture at 48¾, Oriental at 140, Primitiva ordinary at 7 1/32, ditto preference at from 4 15/16 to 5 1/16, River Plate at from 13 11/16 to 13 15/16, and San Paulo at 13¼ and 13⅜.

ELECTRICITY SUPPLY MEMORANDA.

Interesting Return—Private Consumer's Burden—Profits and Power Prices—Further Reductions of Metropolitan Dividends—Midnight Collapse—Mayor's Wrath and His Disclosure.

THE question of the prices charged by local authorities and companies for electricity supply is always interesting; and therefore a return of units delivered and the average prices charged by local authorities and companies in the Metropolitan Police District for power and heating and private and public lighting during the last completed year of account, prepared in pursuance of an order of the House of Commons dated Aug. 22 last, may be subjected to a little examination. The return includes 37 local authority and 27 company undertakings. Between the averages of the total charges for each class of business there are really only fractional differences; but when the figures are looked at individually, very wide divergencies are found, especially in connection with the public lighting charges of the local authorities. In the case of the local authorities, the average charge for power and heating is 1·301d. per unit; in the case of the companies, 1·45d. For private lighting, the average charge of the local authorities is 3·677d. per unit; that of the companies, 3·833d., while for public lighting, the average of the local authorities is 1·85d., the average of the companies is 1·62d. The extremes of the local authority prices for power and heating are Stepney 0·97d. per unit, and Epsom 2·75d.; for the companies, St. James' and Pall Mall Company 1d. per unit, Chislehurst 4d. For private lighting, in the case of local authorities, Fulham is the lowest with 2·1d.; Bexley the highest, with 5·65d. In the case of the companies, the City of London Company's charge is the lowest, 3·11d.; and Chislehurst the highest, 6·9d. For public lighting, in respect of local authorities, Hackney boasts the minimum with 1·312d., and Epsom presents the maximum with 4·3d. The St. James' and Pall Mall Company only charge 0·721d.; the Charing Cross Company 2·93d.—but not in Cannon Street. If we average the whole of the charges for the local authorities and for the Companies irrespective of use, we get a price of 2·563d. per unit for local authorities and 3·034d. for companies. It is argued by the advocates of municipal trading that the average figures show that the local authorities serve the public better than the companies—excepting in respect of public lighting. On the surface it does seem so. But there are local authority under-

takings that, on their finances being thoroughly investigated, are not found to be making a real net profit; while the companies do pay (there may be an exception or two) their shareholders a dividend, albeit latterly a reduced one. The investigations of Local Government Board Inspectors and Auditors have disclosed financial doings that mystify the ratepayers. Insufficient establishment charges, a too small appropriation for sinking fund, large borrowings from bankers on capital account (sinking fund for which is thereby kept in suspension), an indifference to reserves and depreciation, and small assessments for rating in comparison with private trading undertakings—are among the disclosures of recent times. If there was proper attention to all these matters, and the ratepayers' interests considered, the charges for electricity in local authority supply areas would have to be higher. On the other hand, the Companies have perforce to meet all charges, including full rating, and make a profit. Thus the two classes of undertakings show a difference between unsound and sound finance. By public lighting, too, the local authorities, at the expense of the ratepayers, bolster up their electric lighting undertakings; while, through the wisdom of the local authorities in their areas, comparatively few of the companies have public lighting business placed in their hands, though their average price per unit for this purpose is shown to be 1·62d., against 1·85d. on the part of the local authorities. Only one local authority is without public lighting; of the companies only ten have public lighting. The average charge of 1·85d. for public lighting by local authorities with their own undertakings is very misleading. Several of them charge the ratepayers for the electricity used for public lighting prices above 2½d. and even above 3d. per unit, while for power and heating they are content with much lower charges.

In the case of the 37 local authorities, 28,281,320 units were delivered for power and heating; in the case of the 27 companies, 38,006,198 units. For private lighting, the local authorities delivered 42,934,965 units; the companies, 82,995,205 units. For public lighting, the local authorities used 16,578,716 units; the ten companies (out of the 27) supplied only 4,377,875 units. There is a comment in the "Electrical Times" on the returns that is worth quoting. It is this: "Roughly speaking, 31 per cent. of the total output is for power and heating; 10 per cent. for public lighting; and 59 per cent. for private lighting. But as the private lighting prices per unit are twice as high as for public lamps, and nearly three times as high as for power and heat, it follows that *three-quarters of the total revenue comes from private lighting customers*. No wonder supply authorities are watching the progress of the metal filament lamp, and endeavouring to forecast its effect on output and receipts." The private consumers in the aggregate are the backbone of the undertakings; but they have to pay dearly for the insensate policy that sells electricity for power and heating to indifferent consumers at absurdly low prices. The lighting consumers certainly have our sympathy, although as competitors with electricity undertakings gas suppliers have no cause to complain.

The Bury Town Council and the ratepayers have been indulging in a discussion over a proposal to extend the electricity plant by the construction of a new station at Chamber Hall; and the controversy bears upon the point of low prices for power. The question raised is not by any means a new one in electrical policy. The position that has been under discussion can be put in this way: If the existing works are sufficient to meet the requirements for tramway and lighting purposes, will it be a profitable procedure to construct new works that are only needed for the supply of power users consuming electricity at a very low price? The Electrical Engineer has prepared a report on the subject; and if this report proves anything at all, it is that the proposed scheme will eliminate the net profit (we will assume that it is a real net profit) on the existing supply, with, in addition, the extra net profit on the current year, and the incremental profits of the next two or three years; and then the Department has to commence again building up profits—if further capital expenditure does not stop the way—to retrieve what they are now sacrificing. This process of absorption of profits made from existing business for the provision of means for the supply of low-priced electricity to manufacturers does not savour of good business. Let us examine the position. The Electrical Engineer says that the increases of consumption in the past two years have been respectively 37 and 38½ per cent., and the lighting business has been advancing at the rate of 10 per cent. Therefore, we see that the increase for power purposes has been at the rate of 27 and 28½ per cent. The Engineer admits that "comparatively little" has been done up to the present in supplying power consumers, and we admit, on the other hand, taking the prices charged to all classes of consumers, that the existing consumers have been well served. But if the business in power supply at lower prices increases at the rate of three times that of the lighting, net profits will—there is no help for it—be a diminishing quantity. Just consider half-a-dozen figures. The capital expenditure during the next eighteen months is estimated by the Engineer at £62,000, which will necessitate the provision of an annual sum at 6½ per cent. of £4030. Now how does the Electrical Engineer propose to meet this additional obligation? There was a net profit of about £3000 from the existing business in the last financial year; an additional £600 or £700 is expected in the present year. It is estimated that a further profit of £200 or £300 will be made in the following year, and so, speciously argues the Engineer, the additional capital obligation will be met. Just so; but for the greater part, or entirely, out of the existing business and consumers. In other words, all the net profit on the present undertaking is to be wiped out to provide power supply for manufacturers. The existing consumers might well ask that this net profit made out of them should be devoted instead to reducing the prices they are charged for current. The profit is being derived from them, and not the manufacturers. There would be reason in the request. Certain it is that they must not expect a reduction during the next few years, seeing that the profit will be extinguished by capital requirements of the new works; the Corporation having agreed to apply for a loan of £72,000.

With the increase of the sale of low-priced electricity in the Metropolitan area a couple of years ago, the profit for a given output commenced to decline; and certain of the companies had in consequence to reduce their dividends. In the past year, high coal prices have supplemented the disadvantage of the low-priced electricity business; and the first crop of dividend announcements illustrates the effect. The London Electric Corporation are only recommending 2½ per cent. on their ordinary shares, against 4 per cent. in 1905 and 1906. The Directors of the Smithfield Markets Electric Supply Company are not in a position to recommend a dividend; and the balance of profit is to be carried to the general reserve. The Westminster Electric Supply Corporation are proposing a distribution, including the interim payment, of 10 per cent.; being a decline from 12 per cent. last year. The Directors of the St. James' and Pall Mall Company have not, to the regret of the shareholders, got back to the old dividend, but are recommending 10 per cent., as for the previous year. The ordinary shareholders of the City of London Company will receive 6 per cent. for the year.

Just as the last trains were leaving the Victoria termini after midnight on Friday, there was a collapse of the electric current of the Westminster Electric Supply Corporation; and no doubt on Saturday morning the London and Brighton Railway authorities were congratulating themselves that they had put into their new station reliable high-pressure gas lighting. The electrical papers at the time of the installation said the Company had made a mistake; the Company are well satisfied with the saving, in comparison with electricity, they are effecting from the so-called "mistake," and with the absence of the tormenting fear of a collapse. The "Standard" states that the whole of the district round about the station was plunged in darkness, including the station (the report must refer to the Chatham and Dover Station), the streets, and houses and flats. "Gloom and confusion" reigned wherever gas was not on tap.

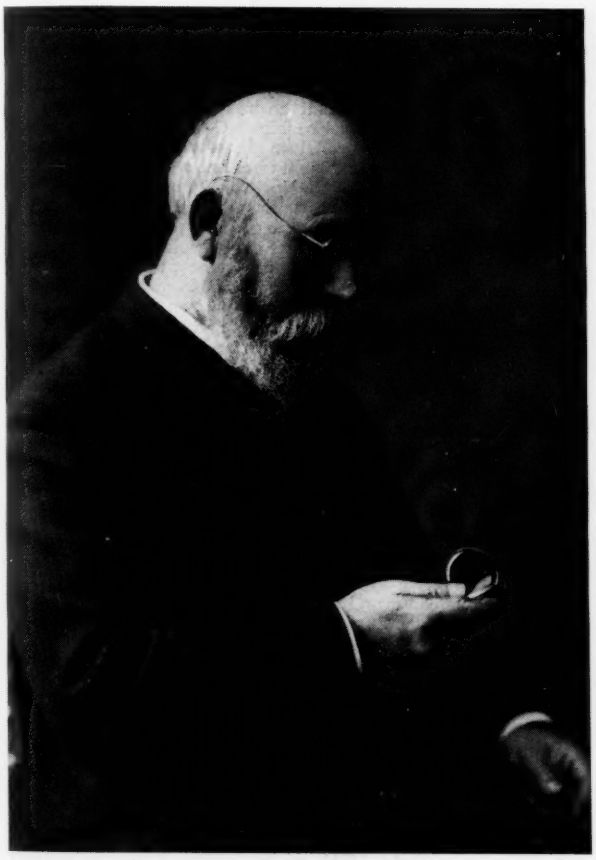
The Mayor of Tunbridge Wells, who is the Chairman of the Lighting (or Electricity) Committee of the Council, is very sore. We could never find any logical argument why, with a competitor in the field, the control of the public lighting of any town should be in the hands of a Committee having charge of the municipal electricity department. The Tunbridge Wells Corporation have, while the Mayor is sojourning in Egypt, come to the determination that independence is preferable, and have put the public lighting in charge of the Watch Committee. Writing in great wrath a letter to the Council, His Worship has advanced the best of all possible arguments in favour of the change, though that was not his intention. The essence of his contention is that the Lighting (or Electricity) Committee should receive preferential treatment, and should be allowed to control the public customer of both the Electricity Department and the Gas Company just as they think fit. The Gas Company, on the other hand—large ratepayers though they be, and as public-spirited as the best of the members of the Council—should be treated as hostile to the controlling authority of the borough and the public interests. The Mayor's attitude can mean nothing else. Listen to these significant words from his letter to the Council: "To make the course you have adopted consistent, both gas and electricity should have been independent bodies, whereas the latter is a monopoly of the Council, and the Lighting Committee is doing its utmost to make it pay even against the Gas Company." One way in which the Lighting Committee have been trying to make the undertaking pay has been by saddling the ratepayers with a heavy charge for electric street lighting, over the character of which much dissatisfaction has been expressed; and they were, when the change was made that placed the control of the public lighting in the possession of the Watch Committee, attempting to get into their hands a larger slice still of the street lighting. Strange it may be, but nevertheless the Mayor gives his word that it is true, this simple transfer of the public lighting to another Committee will operate disastrously to the Electricity Department. "The course you are taking," he tells the Corporation, "will lead to the department being non-payable." It is well to be candid. The ratepayers, however, are amazed that the Electricity Department are in such financial straits, and the control of the public lighting is to them so essential, that disaster can thus easily come upon them. Who dares to contradict a mayor?

A water heater for the utilization of the waste heat in the exhaust of a gas-engine has been applied to a 50 H.P. gasoline engine. The latter is a two-cylinder vertical engine with 2½-inch exhaust connections from either cylinder, and in each of these were inserted short lengths of 6-inch pipe containing series of cast-iron heater sections fitting within the pipe, and each containing 35 square feet of surface. The water heats rapidly and circulates through an 80-gallon tank, which is boiled every two hours.

RETIREMENT OF HERR LEONHARD KÖRTING.

WITH honours clustering round him, through a life of fidelity to his trust, Herr Leonhard Körting, the Engineer and Manager of the Hanover station of the Imperial Continental Gas Association, is relinquishing active official life, but is not severing completely his service to the Association. Conduct and duty have ever ranked high with Herr Körting. Those who know him best are those who can bear highest witness to his unswerving integrity, broad-mindedness, and comprehensive thought in all to which he put his hand. These characteristics of an honoured life are recognized not only by those he served and by his professional brethren, but by those among whom he lived and daily moved, as the writer found when enjoying his hospitality a few years since, and just before the time when the City of Hanover, through its official representatives, together with the Imperial Continental Gas Association, and his professional friends, were celebrating his seventieth birthday and the Jubilee of his service in the Imperial Continental Gas Association.

Herr Körting is a member of a family of renown. He is one of a trio of brothers; and the other two are the founders of the huge engineering works in the village outside Hanover that has been



named after them—Körtingsdorf. Their steam-jet exhausters and their gas-engines are justly world-famed. The father of the three brothers was the predecessor at the Hanover Gas-Works of the now retiring Engineer, and he it was who practically superintended the erection of the original works. All this, and much else of interest, will be found written in our record of the proceedings at the annual meeting of the German Association of Gas and Water Engineers when they met at Hanover ("JOURNAL" June 28, 1904) during the presidency of the subject of the present notice. He entered the service of the Imperial Continental Association, under his father, on Jan. 1, 1855. He was then 20 years of age; so that he has been in the service for 53 years, and will retire on May 1 from active work at the age of 73 years. It was in 1878, on the death of his father, that he took over the chief command of the station. His Jubilee (in connection with which the Chairman of the Association, Mr. J. Horsley Palmer, made a special journey to Hanover) was in January, 1905; and it was then that he was presented with the gold chronometer by the Directors, at which he is gazing so admiringly in our photograph. Age notwithstanding, Herr Körting is not by any means "worked out;" but it is a good age, and 53 years' continuous service stand among the records. And there was no resisting on the part of the Directors the desire of their veteran and loyal servant to have a period of leisure and ease, and therefore time within which to devote to his particular hobby of painting—for he is an exhibitor at the Academy of Arts of Hanover, and has won considerable distinction as a portrait painter. But the Board of the Association are not going to allow him to entirely sever his connection with the Association; and Herr Körting is one who will prize this testimony of esteem and confidence in the highest degree. He retires on full pay; but the Board have asked him to act as Honorary Consulting Engineer at Hanover. His skilled professional experience will be of great advantage to them; and, Hanover being his native place, his advice on local matters and his influence will continue to be invaluable. In accepting his resignation, the Directors have expressed their regret at the loss of his active official services; but they have communicated their high appreciation and admiration of the services rendered throughout the 53 years of service. On behalf of himself and the members of the London staff, a message of good wishes, accompanied by a hope that he may long be spared to enjoy the leisure he has so richly earned, has passed to Herr Körting from Mr. R. W. Wilson, the Secretary. Of Mr. Körting's professional work, we need say but a word. Visitors to Hanover know that the gas plant there has always been kept in line with modern practice; and as the plant is inspected, as works' methods are inquired into, we see from whom Herr E. Körting has inherited those brilliant talents which are being put to such good use in the capital city of Berlin.

The Imperial Continental Association is one in which records of service are made. Though Herr Körting retires after 53 years' work, Mr. William Drory we believe (though about a year younger in age) can claim to have been one year longer in service. However, Herr Körting is known to many British gas engineers through his visits to this country, and particularly through the one he paid, as President of the German Association, at the time of the Earl's Court Exhibition. His genial presence was, and ever will be, welcome here. On our own part, and on behalf of the British gas profession, we tender most sincerely to our veteran friend at Hanover the best wishes for good health, happiness, and repose for many years to come.

CARBONIZING IN GERMANY BY VERTICAL RETORTS.

By CHARLES HUNT, M.Inst.C.E.

WITH reference to the article on vertical retorts, by Mr. Ernest Körting, the talented Engineer of the Imperial Continental Gas Association at Berlin, which appeared in your issue of Jan. 14, I should like to relate briefly what I have recently seen of the present position of this system of carbonizing in Germany.

The Oberspree works at Berlin, which belong to a Company the whole of whose capital is owned by the Imperial Continental Gas Association, supply annually about 140 million cubic feet to a district on the outskirts of the city. The only retorts in present use are four settings of twelve verticals, 5 metres long. These are worked by one man, who does both the charging and discharging; and Mr. Körting informed me that—whereas with horizontal retorts charged by means of a suspended scoop (after the manner of the Biggs-Wall apparatus) the maximum number of men required for the works was upwards of 40, only 20 are now needed. At the Mariendorf works, which I saw next, there are seven similar settings, or 84 retorts at work. Here one man works on the top and another at the bottom—both having plenty of time to spare. They work eight-hour shifts, which is also the case at Oberspree, with intervals of four hours between the shifts. Seven more settings are in course of construction, and foundations are in for a new retort-house to contain 28 such settings, or 336 retorts. At Dessau, there are four settings of ten retorts each, with which (as at Oberspree) the whole of the gas required is made. Here the length of the retort is 4 metres. Returning by way of Cologne (where the gas undertaking is owned by the Municipality), I was shown, at the Elberfeld works, 24 settings of ten 4-metre retorts all in full work; and the Manager volunteered the following comparison of the number of men required to produce the same quantity of gas by the three systems which are in operation there:—

Verticals	11 men.
Inclines	30 ,,
Horizontals, without machinery	60 ,,

At Düsseldorf, near by, there is a bench of six settings or 60 similar retorts in use; and I was informed that two men can make with them as much gas as six with inclines. Such figures indicate that almost, if not quite, the minimum of labour cost has been reached; while the ease with which the various operations are conducted, and the comparative absence of discomfort, are very marked.

The retorts at Oberspree have been working for just twelve months; and I saw no signs of their getting out of shape, or being otherwise the worse for wear to any unusual extent. The other installations mentioned have been in use for periods varying from seven months to two or three months.

The method of working these retorts is everywhere practically the same—the coal being elevated to the required height and stored in overhead hoppers, from which it is filled into the travelling hoppers used for charging. Before the retort is charged, the bottom of it is filled up with fine breeze, so as to

save waste of coal. The charging occupies a few seconds only; and the same can be said of the discharging. The coke is directed by a travelling shoot into a De Brouwer conveyor, by which (after quenching) it is filled into a hopper. From this hopper, the coke is loaded into tipping trucks, which are raised by means of an ordinary waggon hoist to the level of the overhead rails, along which they pass either to the sale hoppers or to the hopper used for filling the generators. Both the top and bottom mouthpiece lids are hinged; the latter being released and closed by mechanical means.

At Oberspree and Mariendorf, the weight of charge for the 5-metre retorts is 580 kilos., and the duration of charge twelve hours, during the last two hours of which steam is introduced. The resultant gas has an illuminating power of rather less than 11 candles, but a calorific value of something over 500 B.Th.U.'s net. Whether or not the length of the retort has anything to do with this comparatively low illuminating power, here at all events is one solution of the problem which gas men have been considering of late—viz., how to maintain calorific value while reducing illuminating power. It is, moreover, an object-lesson to us in this country, that, for the gas supply of so important a city as Berlin, heating power only is regarded as the test of value. At Dessau, no steam is used; and a high illuminating power is maintained in fulfilment of statutory obligations. It is, indeed, claimed there that verticals give better results in this respect than horizontals; and this tends to confirm the results obtained by Mr. G. R. Love with his 45° retorts. At Cologne, steam is used towards the end of the charge; and an illuminating power of about 14 candles is said to be maintained.

The coke produced is of excellent quality, especially when made from English coal; and the tar is said to fetch a higher price than that made from inclines or horizontals, owing to its containing a high percentage of light oils and to the absence of free carbon. Naphthalene troubles are unknown, as are also stopped pipes; although a little thick tar collects in the take-off pipes which are readily accessible, and are cleaned out once a week. The precaution is also taken of collecting any thick tar that would otherwise accumulate in the hydraulics, by placing underneath each dip-pipe a wrought-iron pan; the hydraulic main being so constructed as to admit of these pans being removed periodically without stoppage of the retorts.

There are various other installations of these retorts either in actual operation or in course of construction; but I saw enough at the five works which I visited to satisfy me that the vertical retort has, in the hands of our German brethren, become an accomplished fact.

17, *Victoria Street, S.W., Feb.* 14, 1908.

THE NEW ENGINEER-IN-CHIEF AT MILAN.

Complimentary Dinner to Mr. A. Clement Hovey.

A REPRESENTATIVE gathering of the members of the North of England Gas Managers' Association took place at Tilley's Restaurant, Newcastle-on-Tyne, on Monday evening last week, to do honour and wish "God-speed" to Mr. A. Clement Hovey, on his departure for Milan, to take up the duties of Engineer-in-Chief of the several works of L'Union des Gaz in that city, for which position, as already mentioned in the "JOURNAL," he was selected early in the year by the Directors of the Company. The chair was occupied by Mr. H. Wilkinson, of Harrogate (the President of the Association), and he was supported by Mr. W. Doig Gibb (the President of the Institution of Gas Engineers), and most of the Committee. Many letters of regret were read from members who, mostly on account of ill-health, were prevented from being present; among them being the two absent members of the Committee—Mr. Thomas Bower, of West Hartlepool, and Mr. George Keyte, of Workington.

The toast of the evening—"Our Guest"—was proposed by Mr. W. Doig Gibb. After referring to the claims usually made on such occasions, to the qualities which attach to the place of birth, he said Mr. Hovey's reputation did not rest on this, but on the more solid foundation of his being a right-down good fellow, a well-trained and successful engineer, and a tactful young man who applied common sense as well as theoretical knowledge to all that he said and did. Those present—his friends—all knew the great worth of his engineering knowledge. Their guest had convinced the outside world of this by his paper and supplementary one on the "Constructional Details and Costs of Recent Extensions (1900-2), with Notes on Working Results, at the Tynemouth Gas-Works, North Shields," read before the North of England Gas Managers' Association. He (Mr. Gibb) would only repeat what the Technical Press had already said on this matter—that the status of the Association was raised by the production of such a paper. If this was so—and it was so—then all honour to the person who had achieved this success. He had known their guest intimately for a number of years; and intimacy in his case did not reveal shallowness, but instead, commanded more and more respect and appreciation—he would go further and say love and affection, because his kindness and thoughtfulness were known to them all. Good engineer as he was, his knowledge went beyond this; he seemed to know something about everything. This general knowledge took time to acquire; but still, with his common sense, he had found time for sports—golfing and riding being his favourite relaxations—and so had kept his body as well ordered as his mind. He (Mr. Gibb) had long advocated that, for a young man to "get on," he must be equipped and ready for the struggle. Success, unfortunately, did not come to all who worked for it; but, at any rate, unless by chance or influence, it did not come to those who had not prepared themselves. Their guest was certainly prepared, and now success had come. He did not know whether to congratulate Mr. Hardie on having had such excellent assistance in the past or condole with him now that he was about to lose it. Having mentioned Mr. Hardie, he was sure their guest would not grudge the time for him to say, nor would he deny, that in Mr. Hardie as a chief he had been extremely fortunate. Indeed, Mr. Hardie and their guest were, to all intents, colleagues; and that this was possible was due to Mr. Hovey's many excellencies, both technically and socially. Their guest had for some time been marked for promotion; indeed, he (Mr. Gibb) confessed that he was only waiting a fitting opportunity to acquire him for the Newcastle Company. But he was now left to watch their guest soar away to worlds unknown—unknown at least as far as any chance of now acquiring him went. But he deserved it all. He was about to go to Milan to fill—and he (Mr. Gibb) was sure worthily fill—a very important position. No doubt he would have his trials. But he would surmount them all; for if he knew Mr. Hovey (and he thought he did), he had just that backbone, that pluck, and that knowledge which would enable him to get on the top of all obstacles. If they counted these obstacles as fences, when once he was on the top he would not fall off. If they appreciated a man for his work and for himself, they rejoiced at his good fortune; and they were met there to congratulate their guest on his new appointment and to rejoice with him. He assured him that they all rejoiced that he had secured this important appointment; and they wished him "God-speed" to, and all success in, his new sphere. Before formally proposing the toast, he might be allowed for a moment to refer to their guest's present position as Vice-President of the North of England Gas Managers' Association. He (Mr. Gibb) had ascertained that he had not yet made up his mind whether or not to go forward to the presidency. He was sure he had the interests of the Association at heart; but if he should decide not to take the presidency, they must respect his decision in view of his largely increased responsibilities. He might express the hope that, if their guest could not occupy the position of President of the North of England Association, they might yet welcome him as the President of the Institution of Gas Engineers.

The toast having been cordially honoured, Mr. Hovey expressed his appreciation of the kind remarks which had been made by the proposer, and of the warmth of their reception. The other toasts were "The Chairman," proposed by Mr. W. Hardie, and "The Committee," spoken to by Mr. T. Hardie and Mr. J. Hepworth. The proceedings were enlivened by music; and a very pleasant evening was spent.

A Société Technique Leaflet.

We have received from the Société Technique du Gaz what we suppose is the first of a series of leaflets under the title of "Revue Bibliographique," being a summary of "Articles Interesting to the Gas Industry, which have appeared in Technical Publications." The leaflet now before us cannot be said to be very recent in its information; for it quotes from articles dating from April and June of last year, notably from our "Illuminating Truths" No. 1, on "The Sanitary Aspects of Gas and Electric Lighting," which first appeared in our issue of April 23, 1907 (p. 216). The matter in the leaflet is classified under ten headings: (1) Coal; (2) Purification; (3) Lighting (*a*) by gas, (*b*) by competitors; (4) Photometry; (5) Calorimetry; (6) Producers and Engines; (7) Bye-Products; (8) Distribution; (9) Hygiene; and (10) Books and Papers received. Much of the matter has already been given or noticed in our columns, and therefore need not now be referred to at greater length. The idea of such a periodical publication, classifying and translating articles from various sources, embodying matter of interest to the gas engineer, is not at all a bad one; and we suppose they will be collected and form a supplement to the annual volume of the French Gas Society's "Transactions." The periodical circulation of such a leaflet is certainly more likely, it appears to us, to cause it to be read than the mere collection of miscellaneous abstracts in an annual volume of "Proceedings." We have often wondered to what extent such abstracts, buried in past volumes, are referred to, and of what practical value they are to the industrious student or busy manager. It is necessary nowadays to read, learn, and digest regularly all the technical matter that is forthcoming while it is yet new and fresh; for it all soon becomes old-fashioned and of merely historical interest. So, as far as there is need of it, we welcome the "Bibliographical Review," produced under the direction of the Committee of the Société Technique du Gaz en France, and by their able Secretary, M. Payet.

Many of our readers, especially those who are members of the Evening Star Lodge, will, we are sure, learn with regret of the death, on the 11th inst., of Mr. James W. Neil, a partner in the firm of Messrs. Stephenson Clarke and Co. He entered their service in May, 1872, and was taken into partnership four years ago. Mr. Neil was initiated into the Lodge in 1897.

THE NEW GAS-WORKS AT ANTWERP.

Good progress is being made with the Hoboken (Antwerp) works of the Imperial Continental Gas Association, which are being carried out in accordance with the plans of Messrs. Corbet Woodall and Son. When completed, these works will be highly interesting. They are designed for construction in four sections; and the first will have a capacity of 2½ million cubic feet per day. The site of the works, it may be remembered, was acquired some few years ago—it having been in the occupation of the Vulcain Belge Shipbuilding Company up to that time; and the erection of the gas-works was commenced in 1906. Among the property left on the site was a very complete electricity generating installation; and consequently this has been worked into the plans (with in places gas-engines as stand-bys) for the driving of the mechanical plant. The contract for the first retort-settings was secured by Messrs. Gibbons Bros.—the installation consisting of two benches, each containing nine regenerative settings of nine through retorts, 22 in. by 16 in. by 20 feet. These retorts, it is interesting to note, will be dealt with by the Fiddes-Aldridge discharger-charger. The whole of the coal and coke handling plant will be driven by electricity. The coal plant was described in our columns on Dec. 24 last, p. 903. The erection of two gas-holder tanks, wharfing, piers, and jetties was taken in hand some time since; and now Messrs. Clayton, Son, and Co. are busy erecting two three-lift holders, each of which will have a capacity of 2½ million cubic feet. The supply and erection of the set of six purifiers, which are to be of the luteless type, are in the hands of Messrs. C. & W. Walker. The Bryan Donkin Company, Limited, obtained the order for the gas-exhausters, which are to be electrically driven, with gas-engines as a stand-by. Among the latest contracts let in connection with the works is one for a station meter of a hourly capacity of 125,000 cubic feet; and this has gone to the Berlin Meter-Works of the Association. Messrs. Clapham Bros. have secured the order for water-tube condensers; and the Berlin Anhaltische have been successful in the contract for two Pelouze and Audouin tar-extractors, two rotary washers for naphthalene, and two for ammonia—of a capacity of 2½ million cubic feet per twenty-four hours.

INCREASED COAL PRICES AND PROFITS.

It will not surprise readers of the "Journal" to learn how abundantly the colliery companies have benefited by the rise in the price of coal and the removal of the export tax. Some of the increases in profits are prodigious; and by far the bulk of the money has come out of the pockets of the people of this country. It must, too, be borne in mind that a rise in the price of coal is probably more universally shared by all classes than an advance in the price of any other commodity of every-day use. It will be seen from the subjoined table that in 1907 several of the companies trebled, and even quadrupled, their profits of the previous year. What an outcry would there not be were the gas companies to treat their consumers in the same way—if that were possible.

Name of Company.	Profits, 1904-5.	Profits, 1905-6.	Profits, 1906-7.
Arniston Coal	£1,743	£7,004	£19,336
Baldwins (coal, iron, and steel)	46,363	85,731	131,087
Broomhill Collieries	25,037	42,780	74,497
Burnyeat, Brown, and Co.	13,545	30,046	89,581
East Indian Coal	..	18,537	21,571
Guest, Keen, and Nettlefolds	407,557	427,156	470,511
Horden Collieries	6,143	14,909	69,796
Henry Briggs, Son, and Co.	35,810	40,543	63,347
Indian Collieries Syndicate	..	..	7,315
Insoles	4,419	11,868	38,702
International Coal	8,154	6,700	23,658
James Nimmo and Co.	17,725	21,638	39,576
Lochgeily Iron and Coal	14,210	16,072	35,910
Lothian Coal	9,141	10,095	14,073
New Monckton Colliery	..	..	32,448
Pearson and Knowles Coal	57,187	62,867	110,680
Staveley Coal and Iron	111,002	122,660	168,902
Sheepbridge Coal and Iron	69,008	91,254	117,964
Walter Scott (coal, iron, and steel)	35,369	54,995	64,737
Wilsons and Clyde Coal	56,270	63,639	103,627

If we exclude the firm of Guest, Keen, and Nettlefolds, which owes its profits to iron and steel in much greater proportion than it does to coal, we find that the total profits for 1905-6 increased by 39 per cent. over those for 1904-5, and those for 1906-7 by no less than 74 per cent. over the profits for 1905-6.

New York Gas Supply.—A Bill has been introduced in the New York Assembly to regulate the illuminating power, quality, pressure, and price of gas in the city; and it has been referred to the Committee on Electricity, Gas, and Water Supply. The standards of illuminating power and purity are the same as those now in force; and the prices sought to be established range from 83 c. to $1·15 for the different boroughs. The latter is the top price; and it is to come down to $1 after 1910.

WATER BILLS FOR 1908.

[Concluding Article.]

The following are the remaining Bills promoted by Local Authorities by which powers are sought in regard to water supply.

The Bill promoted by the Leicester Corporation is to obtain (*inter alia*) an extension of their limits of water supply so as to include a number of parishes, townships, and places in the county of Leicester. In the event of the necessary authority being obtained, the existing powers of the Corporation will apply to the enlarged area. The Bill contains provisions for the sale of portions of the water-works plant to other sanitary authorities, and for enabling the Corporation to acquire by agreement any existing sporting and fishing rights over certain reservoirs. Permission is sought to increase the water-rates to the extent of £2 10s. per cent. per annum upon the annual value of the premises supplied. [*Parliamentary Agents: Messrs. Dyson and Co.*]

The Lincoln Corporation Water Bill is to confer various further powers upon the Corporation with respect to their water undertaking, and also to authorize them to construct additional works, and extend their limits of supply. The new works comprise a well and pumping-station in the parish of Elkesley, in the rural district of East Retford, two aqueducts or pipe-lines in connection with it, and an approach road to the pumping-station—all to be completed within seven years from the passing of the Act. The proposed extension of limits will include several places in the Parts of Lindsey and Kesteven, in the county of Lincoln. Power is sought to sell water in bulk within and beyond the limits, to supply it by agreement for other than domestic purposes, and to borrow £180,000 to be repaid in sixty years. [*Parliamentary Agents: Messrs. Tahourdins and Hitchcock.*]

In a General Powers Bill promoted by the Liverpool Corporation, they seek to be relieved of the obligation to supply water to the Corporations of St. Helens, Warrington, and Widnes, under existing agreements, if no demand for it has been made at the expiration of three years from the 1st of January of the present year. They also wish to have the provisions of the Acts of 1862 and 1866 repealed, so that it will not be compulsory to supply water on the constant system and at high pressure. It is proposed to alter the charges for water used for domestic purposes beyond the city itself and the borough of Bootle. [*Parliamentary Agents: Messrs. Sherwood and Co.*]

By the Llanelly Rural and Burry Port Water Board Bill authority is sought for the constitution and incorporation of a Water Board, consisting of representatives of the Rural District Councils of Llanelly and the urban district of Burry Port, in the county of Carmarthen. The Board is to consist of six members to be nominated by the Rural Council and three by the Urban Council, and the first appointment of members is to take place six weeks after the passing of the Act. The Board require power to construct an intake weir or dam across the River Loughor, a compensation reservoir on this river, a service reservoir in the parish of Pembrey, and another, as well as a pumping-station, in the parish of Llannon, and four conduits or pipe-lines—all to be completed within seven years of the passing of the Act. Full provision is made for furnishing compensation water. Where the rateable value of the premises supplied does not exceed £5 per annum, the charge for water is to be 8s. 8d.; where it is above £5 and under £10, the charge is to be at a rate not exceeding 7½ per cent. per annum; above £10, at a rate not exceeding 7 per cent. Closets beyond the first and baths are, as usual, to be extras. Supplies by meter will be charged for at a rate not exceeding 1s. per 1000 gallons; bulk supplies by agreement. As soon as the Board are in a position to supply the portions of the rural district within the limits of the Urban Council, the powers of the latter are to cease. Authority is sought to borrow £85,000 for the purchase of land and the construction of works; £10,000 for new mains, extensions of mains, service-pipes, &c.; the sum required for paying the costs and expenses of the Act; and (with the approval of the Local Government Board) such further moneys as may be necessary for the purposes of the undertaking. For the repayment of the first-named amount sixty years are required; for the second, forty years. [*Parliamentary Agents: Messrs. Torr and Co.*]

The Manchester Corporation seek power to construct certain works, consisting mainly of extensions of weirs and watercourses at present existing, and to purchase by agreement additional lands not exceeding in the whole 50 acres. Authority is asked to borrow for the purpose £160,000, to be repaid within sixty years. [*Parliamentary Agents: Messrs. Sharpe, Parker, and Co.*]

The Margate Corporation are promoting a Bill to obtain further powers with respect to the health, local government, and improvement of the borough; and in it they seek authority to lay water communication-pipes on behalf of owners or occupiers, to enter premises and repair these pipes when they are defective, and recover the cost in the same manner as that followed in the case of water-rates. They also apply for power to lay down pipes for furnishing a supply of sea water on such terms and conditions as may be prescribed; the proceeds to be paid into the district fund. [*Parliamentary Agents: Messrs. Sharpe, Parker, and Co.*]

The Monmouthshire County Council Bill is to authorize the Council to construct water-works and make better provision with regard to the supply of water in the county. The works proposed comprise an impounding reservoir in the parish of

Llanelieu, in the county of Brecknock; a dam or weirs across the stream known as the Grwyne Fawr, in that parish; a tank, with inlet and outlet works, in the parish and urban district of Abersychan; a similar tank in the parish of Abertillery; six conduits or pipe-lines; and three roads. Power is sought to appropriate the waters of the above-named stream, and all others, as well as the springs and waters intercepted by the works authorized. Provisions are made for the regular supply of compensation water. Ten years are asked for the completion of the works, which are not to be commenced until the Council have by resolution (passed after receiving the report of their Finance Committee) declared themselves satisfied on certain financial points specified in the Bill. The Council will be under obligations to supply water to water authorities within the county, under conditions fully set out in the Bill; but no company are to be entitled to a supply unless they shall have offered, subsequently to the passing of the Act, to sell their undertaking to the local authorities in whose districts their area is situated, or any of them, on terms to be settled by arbitration. Where water is supplied by the Council to any company, certain provisions of the Water-Works Clauses Act, 1847, are to apply. The Council wish to be empowered to supply water in bulk outside the county. Authority is sought to raise £170,000 for the purchase of lands and the construction of works, £10,000 for mains, and such further money as the Local Government Board may sanction. Sixty years are asked for the repayment of the two amounts named. [*Parliamentary Agents: Messrs. Lees, Butterworth, and M'Donnell.*]

The Padiham Urban District Council are applying for an extension of their water limits, so as to include the whole of the townships of Sabden and Simonstone, and part of the township of Altham, in the county of Lancaster. The Accrington Board are not to supply water in the Council's district; and their powers in respect of the portion of Altham taken over by Padiham are to lapse. Authority is asked to purchase by agreement the mains of the Burnley Rural District Council in certain parts of Altham and Simonstone. The charge for water is to be upon the gross estimated rental of the premises supplied; and for other than domestic purposes, by meter or otherwise, on such terms as may be agreed upon. Extensions of time are required for carrying out certain works. Among the financial provisions of the Bill is one giving the Council power to borrow the sum necessary for the purposes above specified. [*Parliamentary Agents: Messrs. Baker and Co.*]

The Ravensthorpe Urban District Council Bill is to confer further powers upon the Council in regard to their water undertaking. The limits of supply are to be the entire district of the Council, who ask for authority to make bye-laws for the prevention of waste, to sell or let meters, and sell water by measure. The charges for domestic supplies are not stated; but in addition thereto the Council propose to levy a sum not exceeding 5s. for each closet beyond the first, 7s. 6d. for every fixed bath capable of containing not more than 50 gallons, and such sums as they think fit for baths of larger size. The price for meter supplies is not to exceed 1s. per 1000 gallons. [*Parliamentary Agents: Messrs. Baker and Co.*]

The Rochdale Corporation are applying for authority to construct additional water-works, consisting of a covered service reservoir, two lines of pipes, and a communication road, to be completed within seven years. They also ask for an extension by ten years from the 12th of August next of the time specified in their Water Act of 1898 for the completion of a storage reservoir then sanctioned. Persons taking water from any of the troughs of the Corporation for the use of locomotives, steam-waggons, or motor vehicles, except by agreement, are to be liable to a penalty not exceeding £5 for each offence. Power is required to borrow £18,000 for the purchase of lands and easements for the water-works and for the construction of the reservoir and the road, £3500 for the pipe-lines, and £12,000 for new mains, extensions, service-pipes, and meters—to be repaid within sixty, fifty, and forty years respectively. [*Parliamentary Agents: Messrs. Sherwood and Co.*]

The Bill of the Skegness Urban District Council is (*inter alia*) to authorize them to purchase the undertaking of the Skegness Water-Works Company, and supply water within their district, the parish of Winthorpe, and part of the parish of Croft, all in the Parts of Lindsey, in the county of Lincoln. If within six months from the 4th of August next the Council give notice in writing of their intention to purchase, the Company are to sell their undertaking for a sum to be agreed upon, or fixed and determined as provided in section 70 of the Skegness Water Act, 1905. On payment of the purchase-money, the concern is to be wound up and the Company dissolved; but until the transfer they are to manage it, pay all outgoings, and be entitled to all receipts. The Council ask for authority to borrow the sum necessary for completing the purchase and defraying the incidental costs and expenses, and for sixty years in which to repay it. [*Parliamentary Agents: Messrs. Tahourdins and Hitchcock.*]

The Slough Urban District Water Bill is to authorize the Council to purchase the undertaking of the Slough Water Company, and supply water in the urban district of Slough and the neighbourhood. Within six months after the passing of the Act, the Council are to serve upon the Company notice of their intention to purchase, at a price to be agreed upon, or determined by arbitration under the Lands Clauses Acts; and in assessing the amount, the arbitrator is to have regard to "the net maintainable revenue of the undertaking for the three years ending Dec. 31, 1908," as well as to the provisions of article 28 of the Slough Water Order of 1906. The Company are to maintain and carry on the works until the completion of the purchase. The charges for water supplied for domestic purposes are to be based on the rateable value of the premises, ranging from 8s. 8d. to a maximum of 7½ per cent., with extras for closets (after the first) and fixed baths. Authority is required for the supply of water by measure for either domestic or other purposes, as well as in bulk by contract, on such terms as the Council think fit. They require power to borrow the sum necessary for completing the purchase and defraying the incidental costs and expenses, and for a period of one hundred years from the date of borrowing in which to repay it. [*Parliamentary Agents: Messrs. Baker and Co.*]

The Bill promoted by the Stockport Corporation contains a clause in which they seek power to make a tramroad, rather more than a mile-and-a-half in length, in the parish of Hayfield, in the county of Derby. It will commence by a junction with the line of the Great Central and Midland Railways Joint Committee at a point near the Hayfield Railway goods shed, and terminate in the existing road to the Kinder Water-Works of the Corporation. Authority is required to borrow £8600, repayable in thirty years, for carrying out the work, for the completion of which five years are asked. [*Parliamentary Agents: Messrs. Lewin, Gregory, and Anderson.*]

The West Bridgford Urban District Council are applying for authority to acquire from the Corporation of Nottingham the portion of their water undertaking which is situated in the Council's district, and also to construct a pumping-station, reservoir, and other works for the supply of water. Not less than six months' notice from the passing of the Act is to be given by the Council of their intention to purchase; and the price to be paid, failing agreement, is to be fixed by arbitration under the Lands Clauses Acts, and it is not to include any sum for goodwill or profits. As usual, the Corporation are to pay all outgoings and be entitled to all receipts till the completion of the purchase. The Council ask to be empowered to construct a pumping-station and well in the parish of Holme Pierrepont, a conduit or pumping main leading therefrom to a reservoir in the parish of Edwalton, two pipe-lines from it to West Bridgford, and an occupation road commencing in the parish of South Wilford and terminating near the reservoir. Five years are required for the completion of these works; and authority is asked to borrow £35,000 for carrying them out and for the acquisition of lands, to be repaid within fifty years from the date of raising the money. For the purchase of the portion of the water undertaking of the Nottingham Corporation, whatever amount may be necessary is required, with a similar period for repayment. The rates for the supply of water are based upon the annual rack rent or value of the premises supplied, with the usual additions for extra closets and fixed baths. The price for water supplied by meter is not to exceed 1s. per 1000 gallons. The other provisions of the Bill include power to sell water in bulk and to supply and inspect meters and fittings. [*Parliamentary Agents: Messrs. Sherwood and Co.*]

One part of the General Powers Bill promoted by the Wolverhampton Corporation is to confer further powers upon them in respect of their water undertaking. In cases where water is supplied to houses let for less than a quarter, provision is made for the payment of the water-rent by the owner; and the Corporation are not to be bound to supply with water otherwise than by measure houses partly used for trade. In this case, however, they will furnish a supply for domestic purposes at a rate not exceeding 1s. 6d. per 1000 gallons. Section 17 of the Water-Works Clauses Act, 1863, by which a penalty not exceeding £5 is imposed for waste of water caused by supply-pipes, &c., being out of repair, is to be incorporated in the Act. [*Parliamentary Agents: Messrs. Sharpe, Parker, and Co.*]

The preliminary arrangements for the meeting of the British Association in Dublin next September have been now completed. Among the Presidents of Sections we are pleased to notice the name of Mr. Dugald Clerk, M.Inst.C.E., who will preside over the Engineering Section.

In the report of Mr. J. Darrah's remarks on Mr. Temple's paper read before the Midland Junior Gas Association (p. 355), the statement appears that the bricks for the checker-work should also not contain much oxide of iron, as this was liable to be reduced "to" carbon monoxide—instead of "by" carbon monoxide. We are also asked to point out that in the report of the visit of the members of the Eastern District of the Scottish Junior Gas Association to Messrs. R. & A. Main's works at Falkirk (p. 296), Mr. T. M'Ewan was described as "the" commercial representative of the Company, instead of as "one of the" commercial representatives.

Those of our readers who visited the Milan Exhibition in 1906 may remember that the Birmingham Corporation Water Department had on view a model of the Welsh watershed from which the supply for the city is obtained. It showed in a very striking way the physical peculiarities of the portion of Mid-Wales feeding the Elan and the Claerwen; and it attracted considerable attention among Italian engineers and others interested in water supplies, several of whom sent to Birmingham for particulars of the scheme. The Department were awarded a bronze medal for their exhibit, and it was received last week by the Clerk (Mr. E. Antony Lees).

AMERICAN GAS INSTITUTE AND ELECTROLYSIS.

Remarks on Professor Ganz's Lecture.

It may be remembered that some time ago a Committee was appointed by the American Gaslight Association to consider the subject of electrolysis, with the assistance, as Consulting Engineer, of Professor Albert F. Ganz, of the Stevens Institute of Technology. The Chairman of the Committee was Mr. A. G. Glasgow, who presented their first report, which was a very long one, at the meeting of the Association in 1905, and it was subsequently printed in pamphlet form, and noticed in the "JOURNAL" for July 3, 1906 (p. 37). The Committee was continued on the constitution of the American Gas Institute; and at the meeting of that body last October, a further report was, at Mr. Glasgow's request, called for by the President (Mr. Walton Clark, of Philadelphia) immediately after the delivery of the lecture by Professor Ganz, some extracts from which were given in the "JOURNAL" for the 4th inst. (p. 293). Mr. Glasgow explained that his reason for asking for the report of the Committee to be called for at this particular point in the proceedings was that the lecture was, in fact, the report of the Committee for the year. He thought the members would agree that if the Committee had done nothing else to justify their existence, they had done yeoman service to the Institute in securing Professor Ganz as their Consulting Engineer, and starting him on the electrolysis business. He would be happy to answer any questions the members might put, or reply to any criticisms they might offer. He added that the relations of the Committee with the Chairman of the German Gas and Water Association continued very cordial. They were not blessed, as were their German friends, with a considerable annual appropriation for investigations into electrolysis, but they were generously allowed to benefit by their conclusions; and they had quite recently entered into correspondence with the French Society and the British Institution, looking to the appointment of co-operative Committees by them. Manifestly, if the American Institute and the three European sister Institutions could all work in concert in this matter, it would be far more beneficial than if each one worked alone. He might mention that when the Committee distributed their original report, some six months before the 1906 meeting, they invited communications from members relative thereto; but not a single communication or suggestion of any sort was made. He submitted that a Committee of this nature, of an Institute of the character of theirs, had the right to expect that the individual members would take a keen and active interest in the work, and communicate any facts or information that would add practical value to the conclusions. On the other hand, had anybody been nursing any discontent with the last report, this was the time to ventilate it; for the Committee saw nothing to change therein, and nothing to add to it. They hoped, however, that in the reasonably near future they would be able to substantiate their conclusions to such an extent that they would feel justified in inviting some undertaking to test them in a Court of Law with every prospect of success.

A motion was submitted, that the Committee be discharged with the thanks of the Institute, and the President then invited remarks.

Mr. A. S. Miller said it was some time since he read the report; but, to the best of his recollection, the Committee came to the conclusion that the only absolute safety lay in the double trolley. They had to take conditions as they found them. The question the gas man had had to decide, when he found stray currents on his pipes, was what to do about it. He (Mr. Miller) had for a number of years advocated bonding, notwithstanding that Professor Ganz thought that such a remedy was radically wrong; but he had not felt it possible to go into a Court of Law with the idea of making a railroad company reconstruct their whole system when they could, for a comparatively small expenditure, adopt an efficient remedy by bonding. He did not feel that there was anything for them to do but to bond. When a system of piping was bonded, it did not necessarily mean that they must simply tie in a few places of high potential, but must make a careful survey, as Professor Ganz said, of the whole system to determine the danger-points. It was necessary to survey the water-pipes, cables, and all other underground structures in the neighbourhood, and to extend the return feeders far enough from the generating or sub-stations to preveut an excessive flow of current through any particular pipe or cable. It was also necessary to bond to the proper returns all the underground structures in the immediate vicinity. These could be bonded so as to practically prevent electrolysis, and it had been done in at least two cities to his knowledge. He did not say that the double trolley would not be better; but, so far, it had been commercially impossible to compel railroad companies to change to the double-trolley system.

Mr. D. M'Donald, Louisville, expressed regret at hearing the statement by Mr. Miller, because if anyone of them had a lawsuit with a street railroad company, those remarks would be read to the jury to show that the difficulty with electrolysis could be overcome by bonding. The subject was discussed pretty thoroughly last year, and it was the opinion of the whole Institute that as soon as the stray currents were turned loose there was bound to be mischief, and that there was nothing a gas company could do to protect themselves. He thought they could to some extent localize or minimize the trouble by the bonding Mr. Miller advocated; but in the case of cast-iron pipes with lead joints, or at some of the fittings in wrought-iron screw pipes, they were bound to have trouble wherever the current left the pipe or leapt across any gap in the continuous conductor.

Mr. H. L. Doherty said, in common with the previous speaker, he was sorry to see anything go on the record of their proceedings which was prone to aggravate the trouble in any way. He did not think the double trolley was necessary in most cities, and yet he believed there were conditions where it was almost imperative. He had listened to the lecture by Professor Ganz with a great deal of interest. He thought the lecturer disclosed some rather startling errors that had cost the water and gas companies of America a great deal of money and considerable trouble. He personally did not think there was any general rule that could be laid down as to how a system should be arranged to prevent electrolytic action. But he had tried to get some sort of rule to go by, and the only one that he ever evolved was one that sounded so simple that it seemed almost foolish. At the same time, he believed it had saved them a great deal of money, and had helped to do their work properly. His rule was simply that the arrangement must be such as to prevent the current from leaving the pipe through an electrolyte. If they planned what they were going to do, and measured it by that rule, they would find they had produced the condition they required. Professor Ganz's remarks on the need of simultaneous observations was another thing which he thought would bear reiteration. The measurements made by one group of observers, at different hours of the day on different days and under various conditions of soil, were sometimes apt to be so misleading that one was worse off with them than if one did not have them at all. There had been a general feeling that bonding was the proper thing to do. But it always seemed to him that bonding at the power-house would tend to generalize the trouble rather than localize it; and if he must have electrolytic action he preferred to have all of it at one spot, if possible, where he could anticipate it. Several other points in Professor Ganz's lecture he thought might well be noticed; one being the difference in potential. While he made it very clear that there was no such thing as being able to determine the action by the difference in electromotive force, he (Mr. Doherty) still thought that this particular point, in view of the common error that prevailed, should be more definitely emphasized. The trouble was apt to arise at the point where they had the small difference of potential. It was also the general belief of gas men that the most perfect system of bonding on the part of a street railway company would be the most perfect protection; but there were often cases where bad bonding at certain portions would be advantageous. He might cite an example of a line going out through perfectly dry soil, and then through a swamp into another portion of dry soil. If they destroyed the railway company's bond at the point of leaving the dry ground, got into the swamp, and depended on all the current going to the pipe in the damp ground at that point, and passing off through the metallic bond at some other point, they would very likely be free from electrolytic action from this particular current. In general, he believed that the bonding of pipes to rails was about the most dangerous thing possible; but when it was going to be done, the work should be placed in the hands of a man who thoroughly understood the problem. He concluded by expressing his admiration of Mr. Glasgow and his Committee.

Mr. Bump said he thought the man who advocated a system of insulated joints had been somewhat neglected, though the derivation of benefit therefrom was nearly always considerable if they were intelligently installed. There were gas men who said they did not care whether a water company bonded or not. It was a well-known fact that there was a constant interchange of current between water-pipes and gas-mains. Taking the ordinary system, with 1000 or more water heaters, where they had a metallic connection between the two systems, it was apparent that what one did must affect the other, even if there were no interchange of current through the earth. Recently another factor which had entered into this problem was the adoption of the alternating current system for traction work, which he believed was going to be the ultimate solution of the difficulty. Bearing on the question of the electrolytic effect of alternating current on pipes, a paper was presented before the American Institute of Electrical Engineers in which it was proved that the damage by electrolysis was reduced to a fraction of 1 per cent., which made the damage so small that it would be almost impossible to distinguish between it and natural corrosion.

Mr. Doherty said he should like to add just one remark to the effect that what was wanted, as it seemed to him, was a practical check-valve for electricity, so that when a bond was made it would not only be one that would take the current off the pipes, but also one that would not take it on. He had felt that the bonding of a street railway system where they had an immense number of water connections was apt to be an advantage, though he would defer to Mr. Bump's judgment on that point. Where a water company had thoroughly bonded their system, and had a number of metallic conductors, the action in a city where they used cement joints would be that any current entering the gas-pipes would be apt to back and take a path on the water-main.

Professor Ganz, replying to the remarks, said, with regard to the significance of potential differences as an indication of electrolysis or of current, he agreed thoroughly with what had been stated. He thought that this was borne out in his lecture. He could not deny that if they ran a large return conductor from the

negative bus-bar to every positive pipe of their system, and maintained every pipe negative, the system would then be safe. If, however, they had a condition such as he had shown on the board, where four times during the day the current at one point in the system changed in direction, then the points at which the bonds would have to be applied would also change, so that it would be practically impossible to bond successfully. It was also said that the solution of the problem would be the use of alternating current. He did not think this was necessarily so. He agreed that laboratory experiments had been conducted which showed that with alternating current the electrolysis was only up to 2 per cent. of that produced by an equivalent direct current; but they had not had any practical experience with alternating current roads. This current would produce electrolysis, not only where it left but also where it entered the pipe; and he was not sure that a piping system was going to be safe, even if the alternating current should be adopted for all neighbouring electric roads. This was still a long way off.

The President reminded the members that there was before them a motion that the Committee on Electrolysis be discharged with thanks, and that the whole matter be referred to the Technical Committee; and he asked them if they were ready to vote upon it. They assented, and the motion was thereupon adopted.

SOME ASPECTS OF GAS SUPPLY.

At the Annual Meeting of the Midland Association of Local Government Officers, held at the Acorn Hotel, Birmingham, on Monday last week, Mr. R. J. Rogers, of the Birmingham Corporation Gas Department, read a paper entitled "The Supply of Gas to a Large Town—What it Involves; and Some of the Applications of Gas." The author briefly referred to the process of gas manufacture as carried out at a modern works, and was aided in his illustrations by a complete model of a gas-works plant loaned by the Birmingham Gas Department.

Referring to the question of the electrolysis of gas-mains by electricity cables, and to the explosions which occurred in junction-boxes, he stated he was of opinion "that some amicable working arrangement should be entered into between the two authorities, with a view to a more careful and systematic laying of cables and mains." Speaking of the attitude of several of the electric light and telephone companies in London, who maintained that the gas companies should keep their mains free from leakage, Mr. Rogers pointed out that it would be recognized that it was to the gas authorities' interest to prevent such leakage, and that every effort was made by gas suppliers to this end. Whatever care was exercised, however, there were instances of leakage which occurred over which gas companies had no control, and which no amount of foresight could have prevented. It was usually in such cases that accidents occurred; and he certainly thought that the attitude of the electricity undertakings should be to do whatever was possible to prevent the great danger of loss of life and property which was involved in these unforeseen accidents, by so constructing their junction-boxes as to prevent the accumulation of gases in them, rather than throw the whole onus of the accident on the shoulders of the gas authorities. Happily, in Birmingham such occurrences had, up to now, been rare.

After referring to high-pressure gas transmission for supplying suburban districts or villages some miles from the city in which the gas-works were situated, and the utility of the mains for furnishing high-pressure lighting *en route* to such places, the author alluded to the qualifications necessary for a gas engineer, and to the improved facilities now afforded to the younger men in the nature of Junior Gas Associations and technical classes. The coming generation of gas engineers, he said, were equipping themselves with the weapons of knowledge, in order to meet the increasing competition of their various rivals, and to maintain and improve the position of the profession to which they were devoting their careers.

By the aid of a chart, Mr. Rogers pointed out the rapid strides that had been made by the gas industry during the past twenty years, and said it would be obvious that the business was not a decadent one. Probably in no other department under municipal control had such progress been made as in that of gas. When electric light undertakings were first established, and the scope of electricity began to be realized, there were many prophecies that gas had seen its best days; but these prophecies had proved false. There was no doubt that the advent of electricity was a blessing in disguise to gas engineers, who were at that time more or less in a state of apathy, and were quietly "resting on their oars." But with the arrival of electricity, they realized that, if they were to hold their own against this new competition, they must arouse themselves, and endeavour to cheapen the production of gas and provide improved methods for its use. That their labours had been successful (perhaps beyond their expectation), was shown by the comparison between the position of the industry at that time and its present state. Notwithstanding, however, the great improvements that had been made, gas production and distribution had by no means reached that state of perfection to which engineers knew it was possible to attain; and the forecast for the future would appear to be that still more striking developments in all branches of gas engineering would take place.

After referring to the increased efficiency now obtainable in gas-engines, the author said the question which naturally presented itself to the user of the gas-engine was as to which was the cheaper method of driving the engine—whether to use town gas of a calorific value of 600 B.Th.U., or employ a low-grade gas such as was evolved from a producer plant. They had it on the authority of Mr. Dugald Clerk that there was no possible chance for suction-gas plants up to 100 H.P. in places where town gas could be obtained at 1s. 6d. per 1000 cubic feet; and this admission was sufficient to convince anyone of the economy of town gas over producer gas. The price of gas for power purposes in Birmingham was 1s. 6d. per 1000 cubic feet—the figure mentioned by Mr. Dugald Clerk; and he (Mr. Rogers) estimated that at least 90 per cent. of the engines in use in Birmingham ranged from 1-H.P. to 100-H.P. It could be safely said the town gas had very little to fear from the competition of suction plants. About two years ago, when suction plants were being boomed in that part of the country, many manufacturers were induced by the fallacious representations of the makers of producer plants to instal them on their premises; and the author's recent experience showed that manufacturers, after giving the plants a fair trial, had in a great number of cases abandoned them and returned to town gas.

Speaking on the hygienic aspect of gas-fires, Mr. Rogers laid stress on their ventilating action. A very large percentage of complaints against gas-fires were due to the fact that they were improperly fitted in the grate, especially in regard to the fixing of the flue; and in many cases those responsible for the fixing of the fires had ignored the true essentials for the proper combustion of the gas, and the means of ridding the atmosphere of the rooms of the products of combustion. If gas-fires were properly constructed and fitted with efficient flues, the economies, both domestic and hygienic, claimed for them could be faithfully relied on. Electrical engineers themselves admitted that, for thermal efficiency, electrical radiators could not compare with gas in regard to cost; but they claimed that they were cleaner and more healthy than gas-fires. If a gas-fire were used in a proper manner, nothing could be cleaner for providing warmth; and in view of the ventilating action of a gas-fire, in changing the air of rooms, he thought they would recognize that, from a hygienic point, it was more efficient than an electrical radiator, which did not induce ventilation, with the consequence that the atmosphere of the room was undergoing a process of "churning," and that the injurious carbon dioxide gases had to be eliminated by other means.

Referring to the strides that had been made in the lighting of public thoroughfares by high-power gas-lamps, Mr. Rogers said that Birmingham, true to its motto ("Forward"), had not been behind London and other cities in providing a display of high-pressure lighting; and the installation in Victoria Square was a splendid example of the system. In one direction the Birmingham installation was unique—that was the whole of the lamps in the square were lighted simultaneously by the turning on of a valve in the Council House. As far as he was aware, this system of simultaneously lighting a public thoroughfare with high-pressure gas was the only one in use in this country. Its utility would be recognized in the case of sudden fogs and periods of gloom to which they in Birmingham were occasionally subject. The whole of the lamps might be lighted at a moment's notice, thus saving the labour of lighting each lamp separately, as was originally in vogue.

The question of smoke abatement, said the author, was one in which officials of many branches of the Local Government service were interested. The subject was a fascinating one, and had occupied the attention of many eminent men for some considerable time past. Mr. Rogers went on to explain the various work that was being done in this country in connection with smoke abatement, and remarked that, notwithstanding the strides that were being made, "the evil was still with us," though not to such a great extent as was the case years ago. That the present method of using coal in domestic grates was wasteful, there could be no doubt. Sir Oliver Lodge rightly termed it a "barbarous" method. Mr. Rogers drew a comparison between the distillation of coal which took place in a gas-retort and that taking place in an ordinary domestic grate, and pointed out that the various valuable residuals which were obtained from the distillation of coal in a gas-works were collected, and from the sales practically three times the value of the original coal was obtained. The amount of soot given off from factory chimneys had been estimated at from $\frac{1}{2}$ to $\frac{3}{4}$ per cent. of the coal burned, and from domestic chimneys about 5 per cent. of the coal burned. Thus it would be seen that the domestic chimney was an important factor to the smoke nuisance. In Birmingham, where so much coal was used in manufactories, he estimated that at least 35 tons of soot per day were evolved from chimneys. Until gaseous fuel was universally adopted for the heating of rooms, for the development of power in engines, and for other purposes where the application of heat was required, the smoke nuisance would remain.

There were several difficulties to be overcome before this transition from solid to gaseous firing might be realized to any great extent. Nevertheless, gradual progress was being made under the present conditions of gas supply; and the great diminution in the quantity of smoke evolved in large cities that was due to the increased use of towns' gas as a heating medium would be evident. For instance, there were over 45,000 gas cooking-stoves in use in Birmingham at the present time, thus preventing the

evolution of smoke from the same number of chimneys. The diminution in the number of chimneys connected with modern factories was a sign that progress was being made in smoke abatement. It was almost as rare nowadays to find a modern factory with its huge chimney-stack, as it was years ago to find a factory without one. He thought the solution to the problem would only arrive when gas undertakings were in a position to supply a cheap low-grade gas of low calorific value—a gas which would be equally suitable for use in engines, heating apparatus of all descriptions, and incandescent burners. When this time arrived, the solution of smoke abatement would come nearer to realization than it was at present. Parliamentary obligations, however, were now such that this "ideal" of the gas engineer to supply a cheap low-grade gas must remain in imagination only until the existing laws relating to gas supply were changed. "A constant dripping wears away the stone;" and if those whose duty it was to prevent the formation of smoke in towns and cities would advocate in every possible way the use of gaseous fuel, it would materially assist this dream of the smoke abater to be more quickly realized.

Speaking of the advantages of using direct high-pressure gas for heating purposes, instead of employing low-pressure gas and air under pressure, Mr. Rogers said that he was indebted to Mr. A. W. Onslow, the Gas Engineer at Woolwich Arsenal, for some interesting information. Mr. Onslow had obtained temperatures as high as 2500° Fahr. in the combustion chamber of an annealing furnace, and 2200° Fahr. on the tempering plate, in less than two hours; and he obtained this result day after day. Such objects as steel axles 6 inches thick and 6 ft. 6 in. long had been annealed or tempered four at a time in a vertical furnace in the space of one hour. Wrought-iron pipes ½ inch in diameter could be welded together in thirty seconds. High-pressure gas was cheaper than coal or coke with open or ordinary furnaces; and being simple in design, quickly heated, and shut down immediately it was not required, it was suitable for workshop uses.

At the termination of the lecture, a demonstration was given of high-pressure gas lighting by means of a model of the Sale-Onslow pressure-raising apparatus; and other interesting models were also shown. A discussion then followed; and Mr. Rogers was heartily thanked for his paper, which was evidently much appreciated.

Mr. Thomas Hawley, of Coventry, a Director of the Kenilworth Water Company, who died last November, left estate of the value of £146,579.

There has lately been issued by the Home Office some preliminary tables of cases of industrial poisoning, fatal and non-fatal accidents, and dangerous occurrences in factories, workshops, &c., during the past year. The fatalities due to gas were 15, or two less than in 1906; to electricity 7, against 13. Two of the accidents were due to machinery moved by mechanical power, two to explosions, four to escape of gas or steam, and the rest to other causes.

Mr. James A. Doran, J.P., who has for the sixth time been elected Chairman of the Gas Committee of the Belfast Corporation, is to be congratulated on the progress made by the gas undertaking under his control; the gas consumption having risen during his period of office from 1,735,368,000 to 2,000,000,000 cubic feet. It was mainly through his instrumentality that penny-in-the-slot meters, which have met with enormous success, were introduced in Belfast. Since 1903 Mr. Doran's first year as Chairman, the sum of £116,000 has been handed over in relief of the rates; while, in addition, the interest and sinking fund charges for the palatial new City Hall, amounting to upwards of £45,000, have been paid by the gas undertaking. Notwithstanding the energetic competition of the Electric Light Department, the Gas Committee are now considering plans for a large extension of the gas-works. They have therefore acted wisely in retaining their Chairman, whose keen commercial instinct has made his advice of the greatest possible service to the Gas Department. It is pleasant to record this instance of a Chairman who enjoys the confidence alike of his fellow-corporators, his officials, and the public generally.

The filling last Thursday of the vacancy in the parliamentary representation of the South Division of Leeds, caused by the death of Sir J. Lawson Walton, the late Attorney-General, calls for notice in our columns from the fact that the Unionist candidate—Mr. Reginald J. Neville—who was defeated by the small majority of 359, is by no means unknown in connection with the gas industry. He is a Director of the Brentford Gas Company, and in his professional capacity as a parliamentary barrister, has generally appeared before Committees on London Gas Bills, and has watched, on behalf of the Gaslight and Coke Company, the electric lighting schemes for the Metropolis. Mr. Neville received an encouraging telegram from Mr. Balfour; and so strong was his support that at one time it was thought he had succeeded. A further examination of the ballot-papers, however, revealed the contrary. We regret the result, as we believe Mr. Neville would, as a Member of Parliament, have done useful work for the country generally and for the particular branch of industry with which he is associated. There is one gratifying feature about the polling at Leeds last Thursday, and that is that the votes obtained by the Socialist candidate were 1579 less than those recorded at the election which took place in 1906.

LONDON AND SOUTHERN JUNIOR ASSOCIATION.

A Lecture on Electric Lamps.

It had been announced that at the February meeting of the Association—which was held last Friday, at the Cripplegate Institute, E.C., under the presidency of Mr. W. Upton—a lecture would be given to the members by Mr. J. W. Helps, of Croydon. The President announced, however, that Mr. Helps had been taken ill; and though he had offered to forward his paper, they had, of course, replied that they would prefer him to read it himself. This, he was pleased to say, Mr. Helps would do when he was better. They had been put in somewhat of a quandary; but fortunately they had been able to secure the services of Mr. W. H. Y. Webber on this occasion, who promised to give them what would no doubt prove an interesting discourse on the new metallic filament electric lamps. They could not, he felt sure, have a better subject, because it represented the latest phase of what their friends the enemy were doing. Personally, he wished the electricians every success with their new lamps, because he was confident the gas industry would be able to go one better.

Mr. Webber, on rising, said it had given him great pleasure to be able to step in and assist the Association out of the difficulty in which they had been put by the regrettable illness of Mr. Helps. When he was asked what he could talk about that evening, it occurred to him that the subject of the newer forms of electric lighting would do. They had all heard a great deal of late about the marvellous progress that electric lighting had made in the two branches of arc and incandescent lamps—that was, outdoor and indoor lighting. The advance which was claimed for exterior lighting had been in connection with the flame arc lamp, which was credited with a very high efficiency indeed; and the progress of interior lighting similarly had been ascribed to the introduction of the metallic filament vacuum lamp.

To begin with outdoor lighting, there was no doubt that something better than the old-fashioned arc was wanted. The arc was a very brilliant and interesting light when it first appeared; but familiarity had not altogether intensified one's appreciation of it. It really was not a particularly efficient arrangement for getting light out of the carbons. As a matter of fact, the arc light was as old as gas lighting itself; it was produced whenever an electric circuit was broken. It was, however, only with the invention which enabled electricity to be generated by mechanical power, that the arc lamp came within the region of commercial success; but for some time afterwards the difficulty of keeping the carbons the proper distance apart stood in the way of its being used for lighting. This trouble was eventually overcome. After explaining the means that had been adopted in order to attain this end, Mr. Webber said the distribution of light by an open arc was incurably bad. The consumption of current was about half a unit per hour; and it was a reasonable allowance to say that in the brightest part the light was about 500 candles. The duty of an ordinary open arc might therefore be taken as 1 candle per watt; and this, of course, was only given in a narrow space round the foot of the lamp.

Alluding to the newest form—the flame arc lamp—Mr. Webber pointed out that the carbons, which were usually inverted, were steeped in a chemical substance, so as to give a flame when the current passed. For this, the carbons had to be soft, and so burned away very quickly. Calcium fluoride was, he believed, the principal ingredient used in the yellow flame arc—and perhaps salt. This produced an extremely acid atmosphere—it was really what the Alkali Inspectors objected to from the tall chimneys in the Runcorn area. But the flame arc was certainly more efficient as a lighting agent, especially the yellow form. They had a duty which was claimed to be as high as 5 candles per watt. The best measured effect that he knew of was 3 candles per watt. They took the same current as the ordinary arcs—the full-sized ones were 500 watt lamps—so that there was no economy in this respect. The economy, such as it was, did not consist in a saving of current, but only in the higher efficiency, as a producer of light, of the current that was consumed. Of course, this higher efficiency was not to be had for nothing. It meant that the carbons cost about one-third as much as the current; and the lamps had to be attended to every day, so that the labour (and also the wear and tear, with all this acid vapour about) was pretty considerable. The polar distribution of this type of lamp was a distinct improvement on that of the open arc; but being an inverted lamp, it was open to the same objection as was the inverted gaslight—it was a downward light chiefly, and not so very good for lighting at a distance. For public lighting, they wanted as much horizontal distribution as possible; and this was where the upright mantle was so useful. With regard to the cost of running the lamps he had been referring to, owing to their low voltage capacity they must be run in series on an ordinary high voltage distribution current, Neither the open nor the flame arc would stand more than about 50 volts. They could, of course, have one arc lamp on a 240 volt circuit; but in this case, they must have about 200 volts of blind resistance somewhere, taking up current and giving no light.

With regard to interior lighting, they must begin with the ordinary 8-candle power carbon incandescent lamp, because it really was the backbone of the electric lighting business, and would continue to be so. It was a lamp of convenient size, and was still the

cheapest they could do. An 8-candle power lamp nominal (actually about 6 candles) might be reckoned to take 40 watts per hour; and reckoning a lifetime of 700 hours, this meant 28 units, which at 4d. per unit came to 9s. 4d., to which had to be added (say) 1s. for lamp renewal. This was the cheapest thing the electricians could do, for all their talk of the efficiency of the metallic filament lamp, because the latter, as at present on the market, would not stand a 240 volt circuit. If they were hung upright, they would stand about 120 volts. Therefore they must have two in a series, just as in the case of the arc lamp; and these two would take 75 watts of current per hour. It was not professed that these lamps would last more than 700 hours. Thus the current would cost 17s. 6d.; and two new tantalum lamps (at 2s. 9d.) would cost 5s. 6d. The tantalums were 25-candle power; so they got a light of 50 candles for £1 3s. If they took two osram lamps, things were rather worse. They used practically the same current; but the lamps cost 4s. each, which would make the total £1 5s. 6d. This was absolutely where the metallic filament lamps stood. A higher duty was obtained; but one had to pay more for it.

The 8-candle lamp was originally made to meet the flat-flame gas-burner, which, with a duty of about 2 candles to the foot, when consuming 3½ feet per hour, would give (say) 7 candles, which was a little better than the nominal 8-candle lamp. It was very easy to see what this amounted to. The charge for 700 hours, at 3½ cubic feet per hour, with gas at 2s. 10d. per 1000 cubic feet, would be 6s. 11d., instead of 10s. 4d. If the same gas was used in an incandescent burner, it would be the equivalent of two tantalums or two osrams. Now, if they had the same consumption of gas (6s. 11d.), and added 9d. for 1½ mantles, this came to about 7s. 8d.—under 8s. certainly. In other words, they could do the whole thing for the price of the osram lamps alone; and electricity people would have to give current away, and give something with it, before it could be cheaper than gas.

At the conclusion of the lecture, Mr. Webber was accorded a hearty vote of thanks, on the proposition of the President, seconded by Mr. W. J. Liberty; and on the motion of Mr. Liberty, seconded by Mr. W. A. Barnett, it was agreed that a letter of sympathy with him in his indisposition should be sent to Mr. Helps.

It was announced that at the March meeting, Professor Vivian B. Lewes would deliver a lecture on the "Theory of the Incandescent Mantle."

SOUTH-EAST OF IRELAND GAS ASSOCIATION.

Quarterly Meeting at Waterford.

At this Meeting, which was held on the 5th inst., under the presidency of Mr. D. W. Tooms, of Fermoy, the paper read was on the subject of

THE RELATION BETWEEN CAPITAL AND LABOUR.

The author began by remarking that the great tendency of people at the present day is to be democratic and socialistic; but he expressed the opinion that good Socialism—by which he meant the distribution of profits made in industrial concerns to the benefit of the many, instead of, as now, to the benefit of the few—had much to be said in its favour. Profit-sharing was the ideal system; but there were few gas undertakings in which it was adopted. The example of the South Metropolitan Gas Company in this respect could scarcely be followed by the smaller concerns. The next best method, to his mind, was piecework, by which the man who could do, and actually did, half as much work again as his neighbour, was worth proportionately more wages. Before this principle could be applied, however, they must have factories and workshops large enough to permit of the introduction of division of labour, and the task performed by the workman must be such that it could be measured by the yard, the ton, or in any other tangible form. But distribution of labour was hard to arrange in gas-works, inasmuch as productiveness varied with the seasons, and many other causes intervened to prevent the general adoption of piecework. It might be possible to introduce it in the carbonizing department (and personally he should like to try the experiment), as there the finished product could be reckoned up tangibly and accurately in cubic feet. He acknowledged that the system might have its drawbacks; but, all the men being of one accord in fulfilling their obligations, he did not see how it should be otherwise than satisfactory.

The next plan of employment was timework, with no direct or indirect interests in the profits of the concern. This was the system in operation in most gas-works in Ireland. How, asked the author, was the remuneration given under it arrived at? How did they stand in regard to the treatment of their employees? By the courtesy of a brother gas manager, he obtained returns relating to the payment of stokers and retort hands, &c., and their relative duties. He had the returns made by 23 works in Ireland, much about the same size as the Kilkenny works, carbonizing from 1500 to 2000 tons of coal per annum. He had tried to make an abstract of these, and appended it to his paper. [See table.] It was very satisfactory to note that the works represented in the Association remunerated their employees beyond the average, which worked out at 23s. 11d. per week for leading stokers and 20s. 11d. for assistants. The duration of the shift in all cases, with the exception of three, was given as twelve hours (which he took to mean ten working hours, allowing two off for meals), while the retorts per man were fully eight. For all practical purposes, what they wanted to compare was the number of working hours and the wages per man. The retorts per man and the coal carbonized he did not reckon of much consequence, as he assumed that the stoker employees were kept fairly busy between one thing and another.

Wages and Hours of Labour in Irish Gas-Works.

No. of Town.	Shift. Hours.	Maximum Retorts per Man.	Maximum Coal per Man.	Weekly Wages per Man.
			Tons.	s. d. s. d.
1	12	12	3	24 0 (*a*)
2	12	6	1 8/10	25 0 and 20 0 (*b*)
3	12	7	2	24 0 ,, 17 6 (*c*)
4	12	8	2½	25 0 (*d*)
5	12	9	3½	22 0
6	8–12*	..	..	25 0 and 23 0 (*e*)
7	8	..	2	28 6
8	12	12	6	25 0 and 22 6
9	12	6	2 2/10	27 0 ,, 22 0
10	12	8	..	23 0 ,, 21 6
11	..	..	..	30 0 ,, 25 0
12	12	6	2	21 0 (*f*)
13	12	9	2½	27 0 and 25 0 (*g*)
14	12	6	..	25 0 ,, 21 0 (*h*)
15	12	..	..	22 0 ,, 18 0
16	12	10	3	20 0
17	12	8	2¼	26 0 and 23 0
18	12	6	1½	23 0 ,, 21 0 (*i*)
19	12	..	..	25 0 ,, 20 0
20	12	..	1¼	24 0 ,, 17 6
21	12	6	2	20 0
22	9½	6	4	20 0
23	10	6	..	20 0 and 17 6 (*j*)
Average .	8·29	..	2 17/20	23 11 and 20 11 23 works and 16 works.

* Make based on 20,000 to 23,000 cubic feet.

PERQUISITES.

(*a*) One week's holiday and 20s. at Christmas. (*b*) 30s. suit at Christmas, summer excursion, annual supper, and four days' holiday. (*c*) 34s. at Christmas, annual excursion, and four days' holiday. (*d*) 40s. at Christmas and one week's holiday. (*e*) 1s. per week, payable in May. (*f*) 5s. at Christmas. (*g*) 1s. extra for Sunday. (*h*) 1½ woollen shirts per year. (*i*) 4 cwt. of coke per month. (*j*) 2 bushels of coke per week and one week's holiday.

Having directed attention to the several particulars given in the table and the remarks appended to it, the author said the comparisons were useful in affording a measure of self-satisfaction; but they proved nothing beyond the fact that at Kilkenny and the other southern gas-works wages were up to, and beyond, the average. The wages of yard labourers, according to the returns, varied from 18s. to 14s. per week; and he presumed 16s. would be a fair average. The question was whether, from a humanitarian point of view, they were paying a living wage. His own idea was that 20s. per week was a fair minimum wage for any ordinary working man. But then the law of supply and demand came in; and plenty of willing workers were to be had at 16s. Humanitarian and socialistic views then came to the front, and people said that if they paid a needlessly high rate of wages they would be enriching the few to the detriment of the many. The only alternative the author could see was to give more employment rather than increased wages. His impression was that if gas managers and others were to continue more men at work, the extra money paid would better compensate them than granting a general rise in wages. They need not run their works on "parochial" principles. But there were many places where extra labour could be put on without loss of revenue; and every man so employed probably meant the keeping of four or five persons out of abject poverty.

In the discussion to which the paper gave rise, the general opinion expressed was that the gap between Capital and Labour should be bridged by the adoption of some profit-sharing scheme—that of the South Metropolitan Gas Company being held to be a good example; but it was thought the question was inseparable from the larger national one of old-age pensions.

The subject of iron *versus* compo. pipes for internal gas-fitting work was also discussed—great diversity of opinion being expressed; but it was generally conceded, even by those who are at present favouring compo. pipe, that, in view of probably higher pressures being employed for gas used for heating, cooking, and lighting purposes, iron piping was more suitable, and should be utilized on all new work.

Two new members were elected—Messrs. Ellacott and Dalton, outdoor and works assistants respectively at the Waterford Gas-Works. On the President's invitation, the members unanimously decided upon Fermoy as the next place of meeting.

At the recent examinations of the University of London, Miss Irving, daughter of Mr. D. Irving, of Bristol, successfully passed her final examinations for the degree of Bachelor of Science, with honours in Botany.

SCOTTISH JUNIOR GAS ASSOCIATION.

WESTERN DISTRICT.

A Meeting of the Western District Section of the Association was held in the Technical College, Glasgow, on Saturday evening—the PRESIDENT (Mr. W. Wilson, of Falkirk) in the chair. There was a good attendance.

GAS HEATING AND COOKING.

Mr. A. P. MAIN, of Messrs. R. & A. Main, Limited, read a paper upon this subject, from which the following are extracts:

Twenty-eight years ago, Sir William Siemens contributed an article to "Nature," in which he said: "I hold that it is almost barbarous to use raw coal for any purpose, and that the time will come when all our fuel will be separated into its two constituents before reaching our factories or our domestic hearths. Such a measure would not only furnish us with the complete solution of the smoke problem, but would also be of great value as a money-saver." When this statement appeared, I must own I had some difficulty in apprehending its full force and meaning—great as my faith then was in the future of gas; but much of what is now apparent to all of us was then unthought of. Genius is always far-seeing; and Sir W. Siemens, in 1880, spoke from a fulness of knowledge that justified his optimism. At the last Institution meeting in Dublin, in proposing a vote of thanks to Professor Lewes, Sir Charles Cameron repeated in 1907 the very same thoughts. He said "he did hope the day would come when the combustion of crude coal in their domestic fire-places would cease. He hoped that all coal imported to the city, before it was used in any way for domestic purposes, would be primarily treated at the gas-works."

Probably the first thought in your minds, after listening to such ideas, is that gas-stove makers will have much to do in the way of improving their apparatus before such a consummation as Sir W. Siemens and Sir C. Cameron looked for can be realized. I quite agree with you, and have no doubt every gas-stove manufacturer agrees; but do not forget—and so great is the domestic revolution already accomplished that we are apt to forget—that the gas-stove industry is still in its early youth, that twenty years ago it was almost impossible to convince people (and some gas engineers among the number) that gas for cooking and heating was a desirable thing to use, or that it had a great future, and was destined to extend the consumption of gas to an extent hitherto undreamt of. Do not forget the steam-engine was a very imperfect thing in its early days. I am convinced gas-stove makers realize that they are engaged in a business which makes increasing demands upon their skill, and which calls for the services of a highly-trained technical and scientific staff.

I do not need to remind you that of late years the problem of gas manufacture has greatly altered, and that it is the heating value of gas, and not its illuminating power, which claims your attention. I am convinced that you will also be called upon, more and more as time goes on, to deal with the question of higher gas pressures. Heat and light are almost convertible terms; and when we find that a pressure of 40 inches will double the efficiency of an incandescent mantle—will give you 40 candles of light for each cubic foot of gas consumed—you will, I feel sure, be disposed to admit there is immense suggestion for all of us in such a fact, and that it opens up a big problem for consideration. Greater light from high pressure means greater heat from high pressure, and, consequently, greater economy; and so the question becomes one which demands the serious attention of the stove maker. There are many factories where gas for manufacturing and power purposes has only held its position by being supplied at high pressure. I mention this, not because I imagine you are not familiar with it, but really for the purpose of emphasizing the point, and impressing it upon your minds; for my purpose in this paper is not to attempt to instruct you, who are experts in gas matters, but rather to try and direct your thoughts to practical problems, which appeal to one who is, like myself, a manufacturer of cooking and heating apparatus.

You are the men to whom the conduct of our great gas undertakings will be entrusted in the future, and to whom we shall have to look for guidance and improvement in the vast and important problems awaiting solution. For I feel more strongly to-day than I did thirty years ago that gas is destined to play a much greater part in our lives than ever it has done. I am persuaded that the next twenty years will witness an immense expansion of gas manufacture, and a greatly increased development of its use for heating purposes. I believe I am expressing what every manufacturer of gas apparatus realizes when I say that much of our inspiration, and many of the most valuable suggestions, have come to us from gas engineers; and we all hope—and we shall not be disappointed in that expectation—to receive increasing inspiration and suggestions from the profession of gas engineers in the future. I would strongly urge you to devote much of your thoughts to the subject of gas heating; for it is to be one of the great problems of the future, and also one of the great industries of the coming years. It is a study which will repay you and interest you.

I think it is very probable we shall have, in the near future, some drastic legislation dealing with the purification of the atmosphere of our large cities. Here in Glasgow people naturally remark that, while we are spending over two millions of money to purify the waters of the Clyde, which we do not drink, we are leaving alone the much more important problem of the purification of the air which we are forced to breathe. But this problem is increasingly pressing on the community; and I fail to see how it is possible to solve it apart from the use of gaseous fuel. The Glasgow Corporation have, as some of you know, experiments going on at present in two houses, which they are occupying for six months for the purpose of ascertaining the pollution of the atmosphere from ordinary coal-fires; and side by side they are experimenting in the use of gaseous fuel and smokeless fuel. The chimney gases are being carefully analyzed; and when these tests are completed, the subsequent report will probably direct public attention in such a way as to form the basis of some demand for legislation. The population of these Islands is becoming increasingly a town population. The smoke and fogs of our great cities have a detrimental effect on the physical health of the people, shutting out, as they do, the health-giving sunlight, and causing by their pollution much of our lung troubles. Great attention is now being paid to the physical health of the nation; and gas authorities and gas engineers should be ready to deal with the demands which such questions will make upon them in the future. The attention now being given to these matters by leading journals all over the country is very significant. Look also at the programme of papers read at the last Gas Institution meeting in Dublin. We find three papers, by very capable men, dealing largely with problems of heating and cooking—viz., Professor Vivian B. Lewes, on "Gas from a Hygienic Standpoint;" Mr. J. H. Brearley, on "Testing of Gas-Fires;" and Mr. F. W. Goodenough, on "The Sale of Gas." I feel that I cannot do you a greater service than to recall those papers to your attention. I would strongly advise you to read and re-read them, till your minds are saturated with the significance of the points so ably dealt with in them.

I shall now ask your attention for a short time to the diagrams and drawings which I have prepared, and shall endeavour to deal with some very simple and elementary practical problems, which may be useful to the younger men among you, who have not had much experience as yet in the handling of gas-stoves. There has been, since the introduction of the slot-meter, an increase in the number of single-cased cookers; and it will interest you to see the results of some tests which I have carefully made, comparing the packed and unpacked cooker—that is to say, the cooker which has a double casing, filled with non-conducting material, and the simple cast-iron cooker without such double casing, and without a lining of non-conducting material—the ovens in each case being of almost similar cubic capacity.

Practical Cooking Test.

[Joint weighing in each case 5 lbs. 10 oz.; similar cut in every respect, and equally cooked.]

	Double-Cased Cooker.	Single-Cased Cooker.
Time	1 h. 15 m.	1 h. 35 m.
Consumption of gas	18 feet.	25 feet.

Joint cooked in single-cased oven took 20 minutes extra time, and 40 per cent. more gas.

Test for Temperature.

	Double-Cased Oven.		Single-Cased Oven	
	Temperature. Deg. Fahr.	Gas Consumption. Cub. Ft.	Temperature Deg. Fahr.	Gas Consumption. Cub. Ft.
Initial heat of oven	80	—	80	—
After 5 minutes	240	1·9	200	2
,, 10 ,,	370	3·8	340	4
,, 15 ,,	440	5 7	420	6
,, 20 ,,	500	7·6	440	8
,, 25 ,,	520	9·5	460	10

Test of Water Heating in Oven.

[One gallon of water in open pan in oven.]

	Temperature. Deg. Fahr.	Gas Consumption. Cub. Ft.	Temperature. Deg. Fahr.	Gas Consumption. Cub. Ft.
Initial temperatnre of water	58	—	58	—
After 15 minutes	100	5·4	90	6
,, 25 ,,	140	9·6	128	9·9
,, 30 ,,	164	11·8	142	11·7
,, 35 ,,	184	13·8	156	13·5
,, 40 ,,	200	15·6	170	15·3
,, 45 ,,	not tested.	not tested	186	17·3

With regard to boiling-burners on gas-cookers, let me recommend to your very careful consideration the following extract from Professor Vivian B. Lewes's lecture at Dublin last June: "It is quite clear that the extreme tip of the outer flame of the bunsen is the only portion that ought to be used for the heating; and if gas-cooker makers would only bear this in mind, and regulate the distance between the burners and the utensils to be heated, they would not only get a larger amount of heat, but would enormously increase the hygienic properties of the stoves." Bear in mind that pressure always plays an important part in such adjustment as Professor Lewes describes; and it is really the varying pressures which create much of a gas-stove maker's difficulties.

There are some points with regard to the fitting of gas-fires which may be useful to you, and which I will illustrate by diagrams. The noise in fires is generally accentuated where

block-tin pipe has been used for connecting; and where soft pipe is used, it should preferably be composition and not block-tin pipe. Burners which have their nozzles bored out burn more quietly than those in which the nozzles have been cored out. Valves used in gas-fire connections (generally with the idea of lessening noise) have the objection that, as the gas is very gradually turned on by a valve, there is more danger of firing-back the burner than where an ordinary stopcock is used. A ½-inch gas supply should be led to every fire.

In the course of his description, Mr. Main stated that his firm had received an order for tailors' ovens, to work with gas at high pressure, and that at the present time they were making burners for the purpose. He had no doubt that if in Glasgow gas could be supplied at high pressure, it could be used for such purposes more economically. They were making some interesting experiments with burners for high-pressure gas, the results of which he was not in a position to give; but they were somewhat surprising. They all knew that an enormous number of grate fires were in operation. These were very good and pretty, but not so economical as many others. When they had a little leisure time, members would find it one of the most interesting things possible to get a grate, a gas-fire, a back-brick, and the necessary amount of fuel, and start to build in the fuel—build it in in two or three different ways, and place the back-brick in two or three different positions; and they would be amazed to find the difference they could make in the fire with the same fuel, the same burner, and the same brick. Nowadays there was a great tendency to go in for shallow fires; and if they brought the back-brick forward against the burner, they would find that this would increase the noise, because it would have the effect of causing a greater current of air to pass through the burner—in other words, they would increase the air supply, and would have a flame with greater intensity of combustion, and hence a much noisier one. If they built the fuel tightly, they would probably not get at all a satisfactory fire; but if they put it in loosely, so that it would occupy about one-third more cubic space, the fire would generally turn out a very beautiful one. The only way to learn such things was to do them for oneself, and watch them, because there were so many small matters in the fitting of a gas-fire that nothing but practical experience would impress them upon one's mind. He suggested that they might have a gas-fire with the flue passing up the wall above the mantelpiece, painted so as not to be obtrusive, and with a damper upon it, to regulate the heat. In this way they would recover some of the heat which would otherwise go up the chimney. [Mr. Main described the air courses in several fires, as illustrated by diagram; and also explained the working of the coke fire with which the firm have been experimenting.]

Discussion.

Mr. A. Wilson (Glasgow) said that in the past gas-stove makers had done a very great deal to forward that most important part of their business. They were doing a lot still; and he had no doubt they would yet do a great deal more for them. Mr. Main's remark as to the calorific value of the gas was borne in upon him by the report that, in Berlin, they published the calorific value of the gas, and not the illuminating power at all. This was, perhaps, what they were coming to. In Scotland, they had been long in coming to it; but he thought nearly all of them were now convinced that there was no need for high illuminating power gas. What they wanted was gas of high heating value. Before that which they were aiming at came to pass in Glasgow, a great deal had to be done, both in regard to the apparatus for using gas and also with regard to public opinion. He was glad to say that, though they had reduced the quality of the gas for some years now, they had fewer complaints at present than ever they had before. There was no doubt this was largely due to the greatly increased use of the incandescent mantle; but it was rather striking, because he remembered that, when he came to Glasgow, seventeen or eighteen years ago, it was quite a common thing to see shoals of letters published in the newspapers, with regard to the poor quality of the gas, the dirty gas, and so on, and it was almost impossible to get people to really understand that it was the high quality of the gas which caused the trouble. They were understanding this better now. Mr. Main referred to some experiments which were being made by the Sanitary Inspector and the Corporation's Chemist in regard to the relative values of gas and coal for heating. He believed they were going to add another item to the trial, in the shape of the coke-fire Mr. Main had described—to see how it would stand, in giving value to users who occupied even single apartments. They were looking forward with great interest to the results of these tests; and though it might be some little time yet before they were published, he thought the results, so far as they had gone, were very encouraging. The question was not only a civic one, it was a national one. In Glasgow, they had been looking to the purification of their river; but it was being borne in more and more upon those in authority, that the purification of the atmosphere ought actually to have taken precedence. They were looking forward to the day when the use of coal would be practically tabooed—when it would be almost an offence to burn raw coal. When this time arrived, he thought the bulk of the heating would come their way—when they had proper apparatus. He did not suggest that they had not already good apparatus; but there was much room for improvement. The figures given with reference to single and packed cookers were very interesting, and bore out what had been found by those who had tested the stoves against each other. There was no question that a single cooker was very uneconomical, and that the packed type was a great step in advance. If they went further, and heated the air as well, it would be another great advance.

Mr. J. MacLeod (Kirkintilloch) thought it would be very difficult to say whether the gas-cooker or the incandescent mantle had done most for the industry. At the first glance, one would say the cooker had done most, because it consumed more gas; but, probably, had the incandescent mantle not brought the advantages of gas strongly before the public, the cooker might not have become so popular as it had done. Mr. Main's remark about not over-praising the advantages of gas was extremely interesting. If they made a simple statement as to what a gas cooker or fire could do, it was safer for themselves in the long run. When they were dealing with consumers who were pretty well off, it was best to state what the cost of gas would be. He had a consumer who wanted a conservatory heated, and who said that cost was no object—he wanted something they could look after themselves, and not have a gardener coming in to attend to a stove. He fitted up a small gas-fire, and found that the conservatory—a place 20 ft. by 12 ft.—could be heated satisfactorily at a cost of 7s. 9d. per week of seven days. The consumer was pleased, because he had no dust, and no trouble, and he or his wife could turn the gas on or off as required. The regenerative system of heating tailors' ovens was highly interesting.

Mr. J. Welsh (Glasgow) believed there was a great future for gas for cooking and heating, especially for providing hot water. The provision of hot water by gas appliances was in Glasgow coming in very slowly. Inquiries had been made with reference to the heating of hothouses; but the difficulty that some of these people had was to get an accurate account of the cost. He was very much struck with the remarks about the building of ball-fires. Some men became very expert in the building of the fuel, especially in the matter of bringing the brick forward. After all, the whole question was one of finance, because the cheaper they could do the work, the more people would use gas.

Mr. W. M. Mason (Glasgow) thought they were deeply indebted to Mr. Main for coming, with his personal experience behind him, and giving them the hints he had. The great smoke problem would certainly be faced very soon. It was a question of gas-fires; and it was the one question for the gas profession in the future. It was not a matter merely for stove-dealers, but for every gas manufacturer, because it would bring in a consumption which would help the gas-works, not merely in winter, when they were in full blast, but in the summer time, when they needed it most.

Mr. A. H. Whitelaw (Glasgow) asked how much it would take to convert an ordinary fire into a gas-fire, and also the cost of a gas-fire alongside.

The President believed high pressure was what was wanted. It might involve the fixing of governors in each house, but would be an advantage to everybody. It would certainly save an enormous capital expenditure to corporations in enlarging mains. He was very much surprised to hear about block-tin piping increasing the noise of a gas-fire. He thought it was due to pressure; but the suggestion was quite a feasible one.

Mr. Main thanked the members for their appreciation of the few remarks he had had the opportunity of making to them. He was perfectly sincere when he said that the makers looked to them for guidance in their business. They would be surprised, perhaps, if they knew the extraordinary attention which was being given by some gas managers to the problem of gas heating. He would like if they would all turn their thoughts in this direction, because the field was great, and, speaking personally, he felt he was only beginning to learn something about it. Probably within the next ten years he would have learned a great deal more. He strongly believed that those of them who were spared for twenty years would see surprising changes in the matter of pressure. The difficulty with regard to the regenerator cooker for ordinary use was that, in many cases, gas-stoves were put in without any flue connection whatever. If they had a flue connection, there was no difficulty. It was a fact that in many kitchens there was no room for a gas-cooker. He thought that the stove of the future would be a combination gas and coal fire, as his own kitchen range was. They had fitted in about 200 of these; and they had not cost the gas department a single penny. They were there at all times; and when they used gas the smell of cooking went up the chimney, as it should do. Also the stove did not take up space on the kitchen floor. The coke-fire he referred to was in the experimental stage. They had had it in use for three or four months, heating one of their workshops; and it did wonderfully well. It was quite true that it had the disadvantage that a certain amount of the heat would be carried into the chimney; but, on the other hand, what could they make of a grate for gas coke? People would not have such a grate, because it lost all its heat. With this grate, they got a beautiful, glowing, red, and very hot fire; and they had the further important consideration that they had no smoke. There again, if they were to have legislation about smoke, not only would they be able to use gaseous fuel, but they might have an open fire, which people loved so much. It would not be a costly fire; and they would get a largely increased demand for coke for domestic consumption.

It was resolved that the annual general meeting of the District should be held on Saturday, the 11th of April, and that after the meeting the members should dine together.

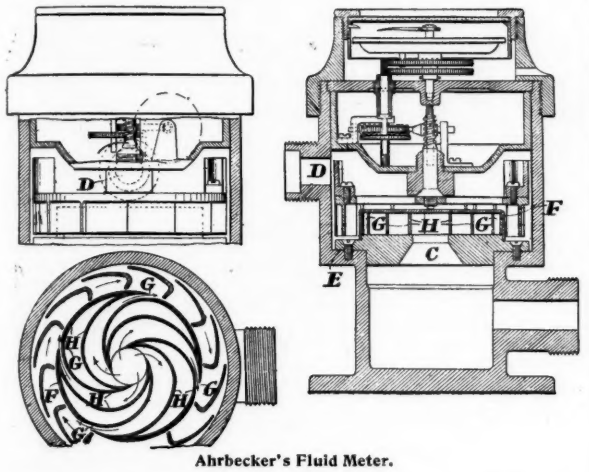
REGISTER OF PATENTS.

Fluid Meter.

AHRBECKER, H. C., of Borough Road, Southwark, S.E.

No. 1294; Jan. 17, 1907.

This invention relates to improvements in fluid meters of the class described in patent No. 3693 of 1881, with the object of increasing the accuracy of the meter, and to cause the operating parts to move under a smaller head of pressure than has been the case hitherto. The improvements consist in retarding to a great extent the flow of the fluid through the meter, in reducing the weight of the rotor, and in arranging for its floatage on the fluid.



Ahrbecker's Fluid Meter.

The main features of the meter are similar to those described in the earlier specification—a two-chambered cylindrical shaped vessel with a flanged base. The fluid to be measured passes into the upper chamber, which contains the measuring elements, by the inlet C, and finally flows out by the outlet D. Just above the inlet is arranged (on the circular shoulder E) a cylindrical casing or stator F, closed top and bottom, having a series of discharge openings G in its periphery and enclosing a series of fixed spirally curved vanes or guide plates H considerably longer than those shown in the earlier specification, with a view to lengthening the path of the circulating fluid. The fluid entering at the centre of the casing is caused by these vanes to issue at the openings G in a direction tangential to the periphery of the casing. On top is a central pivot, on which is mounted a light rotor or turbine wheel made of aluminium. It consists of a broad peripheral band, which (resting on the surface of the circulating fluid) materially increases the floatage of the wheel. The blades of the rotor are attached to the band, and, projecting downwardly, come opposite the openings in the casing F. The blades which form the bucket are considerably longer than those in the 1881 patent, and are formed with an abrupt bend, in order to retard the flow of the fluid. The fluid, issuing through the openings G in a tangential direction, strikes against the vanes and causes the wheel to revolve. The turbine is also provided with vanes which project upwardly in the opposite direction to the blades and serve to check the speed of rotation. It also has a central spindle, which carries at its upper extremity a worm which engages with counting mechanism by which the revolutions of the wheel, and consequently the amount of fluid passing through the meter, is recorded.

Automatically Closing Gas-Burners.

PETERSON, P. E., of Milford, U.S.A.

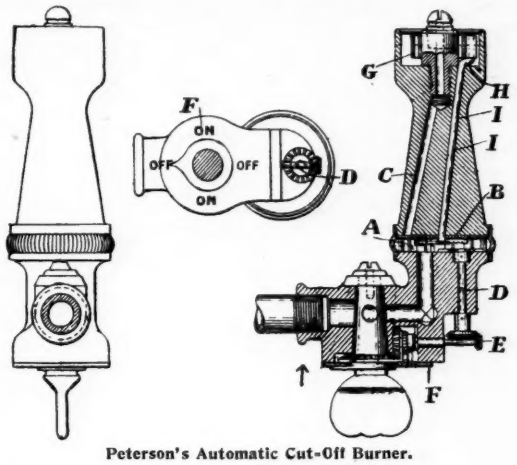
No. 2252; Jan. 29, 1907.

This invention has particular reference to gas-burners provided with an annular thermostatic cut-off, arranged in a closed chamber underneath, and concentric with, the burner, with the object of shutting off the gas if it becomes accidentally extinguished, either by the lowering of pressure in the main or by being blown out at the burner-tip.

The burner-casing is formed preferably in two parts joined together by a collar. The lower part is connected to the gas-supply pipe. A passage from the gas-pipe leads to a chamber A, between the upper and lower parts of the casing; and it is continued in the upper part, terminating at its upper end in the burner-tip. A stop-cock, rotatably mounted in the lower part, has a port extending transversely across it in alignment with the inlet passage-way.

A cut-off plate B is rotatably mounted between the top and bottom parts, and is provided with a series of ports adapted to be brought alternately into and out of alignment with the passage-way C. Around the periphery of the cut-off plate B are provided teeth, which are engaged for the purpose of rotating the cut-off plate by a two-armed driver fast to a shaft D journaled to rotate in the part of the burner, and having fastened to it at its lower end a bevel gear E, which meshes into a bevel gear fast to a shaft journaled to rotate in the lower part of the casing. The shaft has a toothed clutch fast to it, and adapted to engage a spring-pawl fast to a stop-ratchet, fastened rigidly to a bevel gear which meshes into another bevel gear fast to the stop-cock. A stop-pawl fastened to a plate F is in turn fastened to the bottom of the lower part of the burner. A spring is also fixed to the plate, and bears against the periphery of the hub of the toothed clutch.

A coil of flat metal G, of two or more convolutions, surrounds the burner-tip; the inner end being fastened to the tip, and the outer end to a crank-arm formed upon a vertically extending shaft I journaled to rotate in the upper part of the burner, and having fastened to its lower end an arm which constitutes, in effect, a pawl—being formed of thin metal and engaging at its outer end ratchet-teeth formed upon an annular rib integral with, and extending downwardly from, the cut-off plate B. The metal coil is preferably formed of two layers or thicknesses of different kinds of metal—one more easily expanded than the other; so that when the gas is lighted at the burner-tip the heat from it will cause



Peterson's Automatic Cut-Off Burner.

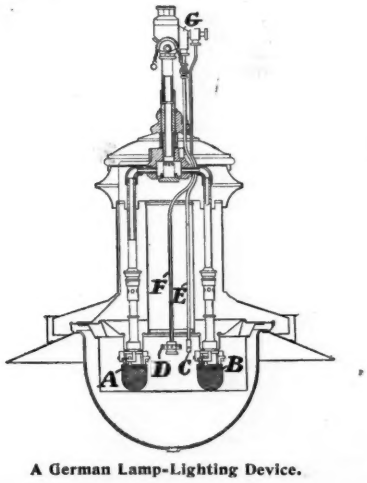
the coil to expand, and when it is turned out or blown out, as the case may be, the heat being removed, the metal forming the coil will contract, thus moving the outer end of the coil outwardly when it is expanded and inwardly when it contracts, and rotating the shaft I, as well as the arm attached to it.

Multiple-Burner Gas-Lamp.

HOWORTH, F. W.; a communication from DEUTSCHE GASGLUHLICHT AKTIENGESELLSCHAFT (Auergesellschaft), of Berlin.

No. 1862; Jan. 24, 1907.

For the purpose of igniting incandescent gas-lamps wherein a plurality of burners are employed, it has been proposed to use (the patentees point out) an intermediate lighting device which is momentarily brought into action for transferring the flame from a single pilot-burner to the main burners. Such an arrangement is described in patent No. 11,739 of 1904. In that case, however, the cluster igniter is provided with apertures arranged some distance apart, along the upper surface of a ring of piping which constitutes the igniter; and the apertures are connected by a restricted flame slot for transferring the flame from one aperture to the next. The present invention has for its object to apply such intermediate lighting devices for use with inverted incandescent lamps.



A German Lamp-Lighting Device.

In the lamp shown, A B are the main burners of the lamp; C a constantly burning lighting-flame burner; and D an intermediate lighter, set in action merely during the operation of lighting, and which has several gas outlet openings. The lighting flame pipes E F are fed with gas from the cock G. The supply of gas to the lighting flame burners may, however, be effected in any other known way "if only care be taken that the intermediate lighter D is lighted from the constantly burning lighting flame C and receives sufficient gas to ensure that the flames of the main burners are ignited by the flames of the intermediate lighter."

Gas-Furnaces.

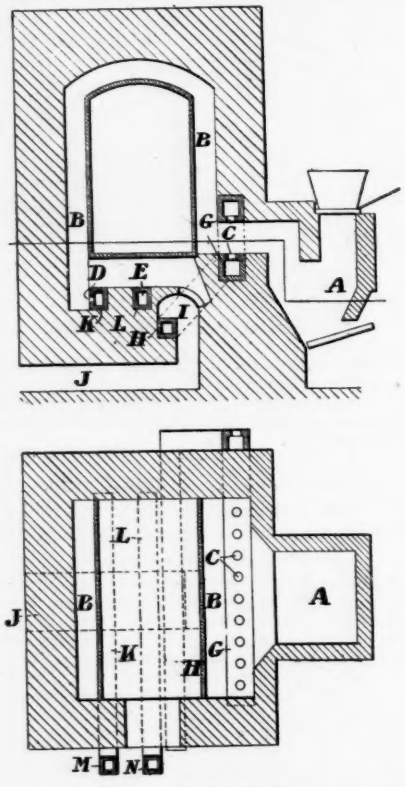
THOMPSON, C. H., of Amblecote, Stourbridge.

No. 7506; March 28, 1907.

This invention relates more especially to gas-muffles as employed (for example) in the decoration of porcelain, china, earthenware, and the like. It has for its object to arrange for uniform heating by gas

obtained from a producer built with, or forming part of, the furnace, and comprising "the adaptation and arrangement of the air supply for effecting the combustion of the gas in two stages—namely, at or near the inlet and the outlet of the gas-passage."

Applied to an ordinary muffle, the gas-producer A is at one side only, and is arranged in communication with a combustion space B, by which the muffle is almost or entirely surrounded. Air gains admission to the space adjacent to the gas inlet by way of apertures C; but the amount of air admitted is so regulated that only a portion of the gas is burnt. The heated products (consisting of the burnt and unburnt gases) pass through the combustion space to the opposite side of the muffle, where an additional air supply is admitted through apertures D or E near the outlet end of the combustion chamber. Here the combustion is completed.



Thompson's Gas-Muffle.

By this arrangement, generation of heat occurs on both sides of the muffle; and, in consequence, by regulating the air supply, the muffle can be heated to a uniform temperature. The applicant has himself employed producers arranged on opposite sides of the furnace, and thereby obtained uniform distribution of heat; but by the present invention the same effect is said to be obtained with the producer on the one side of the furnace only, and a considerable economy in fuel is secured. Preferably the air supply through the apertures C, D, E is preheated. This is effected in the air supply through the ducts G leading to the apertures C by the provision of a channel or pipe H in the chamber I, through which the waste gases pass before issuing into the chimney flue J. The channel H is open at one end to the atmosphere; and at the other end it is connected by a branch to the ducts G. A steam jet may be employed to induce the required flow of air through the channel and ducts.

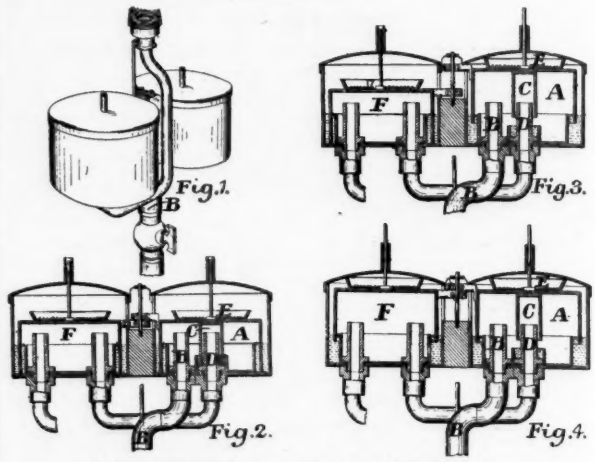
With regard to the ducts K and L, leading respectively to the apertures D and E, these are preferably worked alternately. Both the end M of the duct K and the end N of the duct L are adapted to be put into communication with the outside atmosphere or with the chimney flue J. When the duct K (for example) is open to the chimney flue, waste gases are drawn through it, with the result that the duct becomes heated. Meanwhile, air from the atmosphere passes into the duct L to maintain combustion around the muffle. After a period of working in this manner, the conditions are reversed; and while waste gases are drawn through L, air is admitted to the muffle through K and heated in it before arriving at the orifices D.

Lighting and Extinguishing Gas-Lamps.

JOHNSON, H. H., of Forbes, New South Wales, and MOIN, E., of Sydney.

No. 11,734; May 21, 1907.

This invention, relating to apparatus for lighting and extinguishing gas-lamps provided with a pilot or automatic igniter, by varying the pressure in the main from the gas-works, has been designed "with the view to providing apparatus which will operate reliably between a range of any reasonable maximum pressure and a predetermined minimum pressure." The arrangement consists of the lifting and sustaining bells side by side, which enables simpler valve arrangements and supporting means to be employed, it is said, and ensures the efficiency and durability of the apparatus. The bells, with suitable liquid seals, are contained in a chamber or chambers; one of the bells having a larger sectional area than the other, which has within it a hood or cover and a seal therefor. The smaller bell is weighted to slightly resist the ordinary or normal pressure in the main; while the larger one is weighted so that it will descend further into its seal whenever the pressure falls below the minimum determined upon.



Johnson and Moin's Lamp Lighter and Extinguisher.

Fig. 1 is a perspective view of the apparatus, showing a pipe leading to a burner and a pilot-light. Fig. 2 is a central sectional elevation showing the position of the bells at the unlighted position. Fig. 3 shows the position the smaller bell takes when the pressure is raised above the normal. Fig. 4 shows their position when the lamp is burning.

A is the smaller bell contained in a chamber and having a mercury or other seal. B is the inlet from the main; and C a hood or cover which lies over the outlet pipe D, which is surrounded by a seal. E is a tray or receptacle for weights. From the outlet the gas passes into the second bell F with its similar receptacle for weights and an outlet pipe to the burner.

The bell A is weighted sufficiently to resist being lifted by the normal pressure in the main, which is (say) 25 units. The pressure in the main is then raised to (say) 26 or more units, thereby lifting the bell A and, consequently, raising the hood C out of its seal (as shown in fig. 3), and allowing gas to enter the outlet pipe D leading to the weighted second bell F, which it lifts (fig. 4) on overcoming the weight—thus permitting the gas to pass to the burner, where it is ignited by the pilot-light. The pressure in the main is then lowered to the normal (25 units); but the bells remain in their raised position by virtue of the bell F having a larger capacity and assisting to hold up the bell A. The bell F is weighted to resist closing lower in its seal until the pressure is reduced below the minimum of 15 units. To extinguish the light the pressure in the main is reduced below 15 units, thereby enabling the bell F to descend further in its seal, and allowing the bell A to do likewise. To relight the lamp it is necessary to increase the pressure in the main to over the normal—that is (according to illustration), over 25 units.

Gas-Stoves and Water-Heaters.

RIGG, J., of Queen Victoria Street, E.C.

No. 18,699; Aug. 19, 1907.

This invention has reference to a patent taken out by James Rigg and Samuel Spencer, No. 4767 of 1904.

At the point at or near the top of the stove where provision is made for withdrawing the fumes resulting from the combustion of gas employed for raising steam in the boiler contained within the stove casing, the present patentee proposes to place a tee, to which is attached a fume-tube (vertical or at any appropriate angle), which passes out of the conservatory or room in which the stove is employed to the outer atmosphere—the discharge being protected from the action of wind in causing a down-draught. The purpose of this fume-tube is "the obtaining of a natural exhaust of fumes during the period occupied in raising the steam to be employed alternatively in inducing humidity or creating an artificial exhaust along the slightly descending combined fume and steam condensing tube circulating in the conservatory or room for the further distribution of heat."

In order that the air that may be required "for the steady combustion of the gas" may be obtained from outside the conservatory or room, the base of the stove is enclosed, and to it an air-tube is attached, communicating with the outer atmosphere; the inlet of the tube being protected from the action of winds.

Immediately beyond the tee already referred to is attached the tee leading, on the one hand, to the fume and steam condensing tube, and, on the other, to the three-way cock controlling the admission of steam to either the humidifying jet or to the fume and steam condensing tube. At the point of admission of steam into this tube, and within the tee, is inserted a jet, for the purpose of directing the steam into the circulating fume and steam condensing tube, and so creating the exhaust of fumes along the tube.

Inverted Incandescent Gas-Lamps.

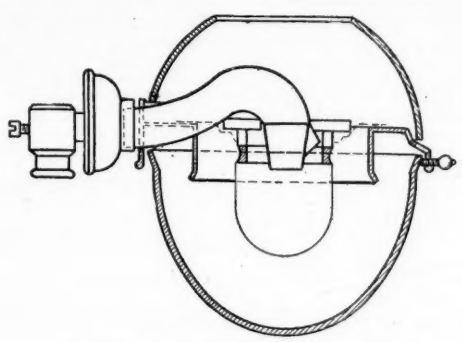
STEINICKE, G., of Berlin.

No. 19,283; Aug. 27, 1907.

This inverted lamp has a globe in two parts (divided along a horizontal plane) supported by a metal holder carried by the burner-tube, so that the lower part of the globe surrounds the mantle and a separating partition, and the whole globe encloses the parts of the burner liable to become blackened.

The burner-tube carries a metal fitting or holder on which a glass

dish is suspended. The mantle is arranged on the mouth of the burner in a separate cup and surrounded by a partition for separating the fresh air and the waste gases. The upper part of the globe (which rests on the holder) encases the part of the burner liable to become blackened; and it serves for carrying off the waste gases, keeps the draught away from the lamp, and retains the warmth—"thus having a favourable effect on the combustion." It can also serve as an ornament, says the patentee, after the manner of a crown, or be shaped in such a way as to act as a chimney. If made of glass or translucent material, it "offers a



Steinicke's Inverted Incandescent Burner.

great advantage over the usual metal chimneys, which render ineffective a large part of the rays of light radiated upwardly." Fresh air enters under the globe-holder, or through openings or annular slots in the globe-holder, then flows downwards into the lower part of the globe, and finally reaches the mantle round the lower edge of the separating partition, which reaches downwards beyond the upper edge of the mantle.

APPLICATIONS FOR LETTERS PATENT.

2352.—Bloomer, F., "Igniting gas-jets." Feb. 3.
2384.—Mouneyrat, A., "Burners." Feb. 3.
2399.—Koppers, H., "Producing ammonium sulphate." Feb. 3.
2444.—Matheson, A. J., "Pumps and compressors." Feb. 4.
2492.—Wengelin, J. V., "Turning on and off gas." Feb. 4.
2496.—Hellstern, O., and Vincent, G. T., "Manufacture of gas." Feb. 4.
2508.—Shuttleworth, A., "Lubricating gas exhausters." Feb. 4.
2527.—Epstein, G., "Generation of gas." Feb. 4.
2536-7.—Sunlight and Safety Lamp Company, Ltd., and Smith, T. B., "Gas-taps." Feb. 5.
2543.—Black, F. A., "Fire-lighter from a gas-fixture." Feb. 5.
2553.—Drakes, Ltd., and Hollander, C., "Discharging retorts." Feb. 5.
2572.—Weickert, M., "Mantles." Feb. 5.
2604.—Glover, T., "High-pressure gas-lighting and heating relief and pressure valve-boxes." Feb. 5.
2605.—Glover, T., "High-pressure incandescent burners and bye-passes." Feb. 5.
2606-7.—Glover, T., "Street-lamps for incandescent gas lighting." Feb. 5
2608.—Glover, W., "High-pressure incandescent burners." Feb. 5.
2688.—Hinton, E., and Andrews, F. A., "Gas-controlling devices." Feb. 6.
2701.—Smith, E. M., "Incandescent burners." Feb. 6.
2716.—Bellamy, A. R., and James, C., "Bye-pass valves for producer gas plants." Feb. 6.
2719.—Feld, W., "Treatment of sulphur dioxide and hydrogen-sulphide for the obtainment of sulphur." Feb. 6.
2720.—Compagnie du Gaz de Lyon, "Treatment of gaseous fuels." Feb. 6.
2735.—Wilson, A., "Production of gaseous power fluids." Feb. 7.
2741.—Craig, A., "Making air-gas." Feb. 7.
2752.—Taylor, C. & G. B., "Gas-fittings." Feb. 7.
2799.—Young, B., "Packing mantles." Feb. 7.
2800.—Francis, A. S., "Inverted burners." Feb. 7.
2811.—Uehlein, J. M., "Water-heating apparatus in combination with gas-stoves." Feb. 7.
2816.—Elton, E. H., and Stephens, R., "Lighting and extinguishing gas-lamps from a distance." Feb. 7.
2822.—Burnett, A., "Gas-engines." Feb. 7.
2844.—Mathieson, W., "Cowls or canopies for stoves and fires." Feb. 8.
2874.—Hill, F. B., and Westwood, G. J. W., "Making a combustible heating and illuminating gas." Feb. 8.
2887.—Cox, F. J., "Burners." Feb. 8.

Improved Carbonizing Results and Profits at Chesham.—The old saying that profits are made or lost in the retort-house proves to be true in the case of the Chesham Gas and Coke Company, Limited. The old system of direct-fired settings had been in use up to last year, when regenerator furnaces were put in by Messrs. Gibbons Bros., Limited. After five months' working—that is, up to the end of the financial year—results quite justified the expenditure. The profits showed an increase of 57 per cent., and the sale of gas increased 13 per cent. In addition to the settings, which consisted of eight and nine retorts respectively, a tar-receiver, retort-house governor, and charging apparatus were installed. The Engineer, under whose supervision the work has been carried out (Mr. George Lane, Assoc.M.Inst.C.E., of Aylesbury), is fully confident that next year's results will show a still further improvement.

CORRESPONDENCE.

[*We are not responsible for opinions expressed by Correspondents.*]

The Proposed Change of Test-Burner.

Sir,—In your editorial columns this week (p. 338), dealing with the Gas Companies Protection Association meeting, you refer to a proposed Bill for making the "Metropolitan" argand No. 2 the universal test-burner; and I gather that the intention is to do so without reference to local conditions which may affect the desirability of the change.

As you say, the alteration in the test-burner amounts to a reduction of illuminating power; and before making so general a change affecting the whole country, it would seem to be a wise precaution to make quite sure such a change is desirable in every instance—regardless of the existing variation in the standard of illuminating power required by the various Acts and other local conditions.

Whether it is fair or just to make an alteration whereby gas of a lower quality is supplied, without at the same time giving the consumer a corresponding reduction in the price, is a matter upon which I should think no argument is needed.

You remark that this proposed alteration has a money value; and it is no doubt true the whole question is, in a sense, one of money value. A reduction in illuminating power would be justified if it were possible to reduce the cost of manufacture, and also the price of gas in strict proportion to the reduction in quality, having regard to the general purposes for which the gas is used. Unless this condition can be fulfilled, a reduction would not be of benefit, because if the price is not reduced in full proportion, the consumer is damaged. On the other hand, if the price is reduced in full proportion and the reduced cost does not justify it, the company is damaged.

Whether a reduction can be justified in any particular case must depend not only upon the actual reduction in cost which can be made, but also upon the price charged for gas. For instance, supposing a given reduction would mean a 10 per cent. loss in quality to the consumer, then the price to the consumer should be reduced 10 per cent.; and where gas was sold at 2s. 6d., the reduction in cost to do this would be 3d. If the gas was 3s. 6d., it would be 4¼d. So that it seems difficult, if not impossible, to deal properly and fully with the question by the very simple means of repealing all existing statutory requirements in regard to the test-burner and substituting the "Metropolitan" argand No. 2.

It is no doubt a difficult matter to arrive at the exact value to the consumer of any reduction in illuminating power, as this value varies according to the use to which the gas is put—the consumers of gas for heating, power, and incandescent lighting only being affected in so far as the reduction is accompanied by loss in calorific value. Unfortunately, this loss is not a constant figure; and, again, there is a reason for treating each locality on its merits.

While it is undoubtedly desirable on many grounds that the test burner, and the method of testing, should be uniform, the change should be made, I think, in such a way as to prevent any injustice being done either to the company or to the consumer.

Arthur Valon.

Caxton House, Westminster, Feb. 14, 1908.

Ferrocyanide Plant at the Hague Gas-Works.

Sir,—I have read with great interest the description of the ferrocyanide plant at the Hague Gas-Works that appeared in your issue of the 4th inst. It is there stated that the process is new; but I should like to point out that the Davis-Neill process, which it resembles in many respects, has been at work in this country for the past five years. This latter process accomplishes all that is expected of the Hague plant—viz., full utilization of the raw materials and the reduction of losses to a minimum. In addition, the plants working under the Davis-Neill process possess several advantages over that erected at the Hague, particularly with regard to the method of dealing with the insoluble ferrocyanides produced, and in the preparation of the pure crystals.

I should not have trespassed on your space regarding this matter were it not that the possibilities of the extraction of ferrocyanides on a commercial scale are so generally overlooked, and that less credit than is due is often accorded to workers in this direction at home.

G. Keville Davis.

265, *Strand, W.C., Feb.* 13, 1908.

Decreased Use of Gas for Public Lighting.

Sir,—I notice that the "Electrical Times" has been making merry in its "Meteorical" manner over the decrease of a few public gas-lamps in the area of the Gaslight and Coke Company for the half year to Dec. 31 last, as set out in the balance-sheet and report of the Company. Stating that a certain number of gas-lamps have been discontinued during the half year often conveys a very wrong impression, as the substitution of larger lamps with increased consumption of gas and higher illuminating value more than compensates for the removal of the single-burner lamps. For instance, a few high-power gas-lamps with consumptions of from 20 to 60 cubic feet per hour will more than balance a large number of single Kern burner lamps at 4·25 cubic feet. On looking over the accounts of the Company, I find their income under the heading of public lamps, &c. (in the revenue account), for the past half year is £75,215 14s. 7d., while for the corresponding period of 1906 it was only £69,492. In a district north of the Thames with which I am acquainted, there has been a slight decrease of about 30 single-burner lamps during the past year; but the consumption is more than maintained by the few larger-sized lamps erected.

Would that the electric lighting companies were equally candid in giving half-yearly comparisons of their workings in the respective districts, with the number of electric lamps removed; but then one would not desire to rob "Meteor" of his weekly (*sic*) joke.

Lux.

Feb. 15, 1908.

Coal Mines (Eight Hours) Bill.

SIR,—I observe that, in your reference to last Thursday's meeting of this Association on the above-mentioned matter, you allude (on p. 338 of the "JOURNAL") to the "somewhat involved resolution" which was passed at the meeting.

Will you therefore allow me to state through your columns that, while the report of the meeting contained on pages 368 and 369 is quite correct so far as it goes, the actual resolution which was passed is as subjoined.

FRED. E. COOPER, Secretary.

Gas Companies' Protection Association,
5, Victoria Street, S.W., Feb. 12, 1908.

That this Association considers that any restriction of hours of labour in coal mines is unnecessary and would be injurious to many industries dependent on cheap coal, and, so far as the industry of gas manufacture is concerned, would inevitably lead to a serious increase in the price of gas, thus inflicting great hardship both on trade and domestic consumers of gas, and especially on the working classes who are largely dependent on a cheap supply of gas for both cooking and lighting purposes.

And resolves

> To use all lawful means in opposing the said Bill, and further that His Majesty's Secretary of State for the Home Department be requested to receive a deputation of members of this Association for the purpose of hearing the views of gas companies as to the effect the said Bill, if passed into law, would have upon the gas industry.

Resolved further

> That the Committee be appointed members of the proposed deputation, with power to add to their number other representatives of gas undertakings (whether or not members of this Association).

PARLIAMENTARY INTELLIGENCE.

HOUSE OF LORDS.

The following further progress has been made with Bills:—

Bills read a second time: Ammanford Urban District Council Water Bill, Audenshaw and Saddleworth Urban District Councils Bill, Briton Ferry Urban District Council Bill, Huddersfield Water Bill, Keighley Corporation Bill, Llanelly Gas Bill, Merthyr Tydfil Corporation Bill, Monmouthshire County Council Bill, Pontypridd Water Bill, Rhymney and Aber Valleys Gas and Water Bill, Skegness Urban District Council Bill, Swansea Valley Gas Bill, Wath-upon-Dearne Urban District Council Gas Bill.

Petitions have been presented against the following Bills:—

Ammanford Urban District Council Water Bill, by the Llandilofawr Rural District Council.

Monmouthshire County Council Bill, by the Pontypool Gas and Water Company, the Marquis of Abergavenny, and others.

Pontypridd Water Bill, by the Llantrisant and Llantwitt Fardre Rural District Council.

HOUSE OF COMMONS.

Tuesday, Feb. 11.

Unusual Conditions of Gas Supply in Fermoy.

Mr. W. ABRAHAM asked the Financial Secretary to the War Office if his attention had been called to the fact that the military gas-works in Fermoy Barracks had recently been connected with the premises of the Great Southern and Western Railway Company; whether he was aware that the gas was supplied by the Fermoy Gas Company to the barracks at 2s. 11d. per 1000 cubic feet, and from the military works to the Railway Company at 5s. 10d.; whether the Gas Company would be obliged to refund the money received from the Railway Company; and whether the War Office intended to allow the military works to continue to be used for the private supply of gas.

Mr. T. M. HEALY asked the Secretary of State for War whether the Fermoy Gas Company—a non-statutory body—supplied the military with gas at 2s. 11d. per 1000, while charging the town 5s. 10d.; whether the Government sanction had been obtained to the supply of the railway station from the barracks gas-works; whether the money thus received for War Office gas would be accounted for to the Government; and whether, as the Irish Courts had frequently decided that the Company acted illegally in breaking up streets without statutory power or the consent of the Local Authority, the War Office would abstain from assisting them against the Town Council in their struggle to compel the Company to resort to Parliament for powers and rates of charge.

Mr. BUCHANAN replied that the facts were substantially as stated in the questions. The Army Council were of opinion that the military gas-works should not be permitted to supply any private customers of the Fermoy Gas Company; and instructions had accordingly been issued that the supply given to the Railway Company should cease after a week's notice.

The following further progress has been made with Bills:—

Bills read a second time and committed: Burnley Corporation Bill, Bury and District Joint Water Board Bill, Conway and Colwyn Bay Joint Water Board Bill, Criccieth Water and Improvement Bill, Glyncorrwg Urban District Council Bill, Lincoln Corporation Bill, Margate Corporation Bill, Padiham Urban District Council Bill, Rochdale Corporation Bill, Slough Urban District Water Bill, Stockport Corporation Bill, West Bridgford Urban District Council Water Bill.

A Bill "to restrict the hours of labour in all trades and industries to eight per day" has been presented by Mr. Will Thorne, who is supported by Mr. Steadman and other Labour Members, and stands for second reading on Friday, the 1st of May.

Petitions against Private Bills.

In accordance with the Commons Standing Order, which requires petitions against Private Bills to be deposited on or before the 12th of February, the following (among other) petitions have been presented against the Bills named:—

Blackburn Corporation Bill, by the Lancashire County Council.

Bromley and Crays Gas Bill, by the Bromley Rural District Council and the Chislehurst and Foots Cray Urban District Councils.

Burnley Corporation Bill, by the Lancashire County Council, the Padiham Urban District Council and millowners and others, and the Burnley Rural District Council.

Derby Gas Bill, by the Derbyshire County Council.

Draycott Gas Bill, by the Derbyshire County Council and the Long Eaton Gas Company.

Dublin and Central Ireland Electric Power Bill, by the Alliance and Dublin Consumers' Gas Company.

Glyncorrwg Urban District Council Bill, by the Glamorgan County Council, the Margam Urban District Council, and the Neath Rural District Council.

Gosport Gas Bill, by the Gosport and Alverstoke Urban District Councils.

Greystones Gas Bill, by the Dublin Corporation and the Rathdown (No. 2) Rural District Council.

Holderness Water Bill, by the East Riding County Council, the Beverley and Kingston-upon-Hull Corporations, the Hornsea and Withernsea Urban District Councils, the Sculcoates Rural District Council, and the Beverley and Barmston Drainage Commissioners.

Leicester Corporation Bill, by the Leicestershire County Council and others.

Lincoln Corporation Bill, by the East Retford, Mansfield, and Nottingham Corporations, the Nottinghamshire County Council, the Hucknall Torkard, Mansfield Woodhouse, Sutton-in-Ashfield, and Warsop Urban District Councils, the Basford, Blythe, Cuckney, East Retford, and Skegby Rural Districts Councils, and the Worksop Water Company.

Liverpool Corporation Bill, by the Bootle, St. Helens, Warrington, and Widnes Corporations, and the Allerton, Whiston, and other Urban District Councils.

London Port and Docks Bill, by the Conservators of the River Thames, the Lea Conservancy Board, the London County Council, the London Chamber of Commerce, the London Waterside Manufacturers' Association, the Brentford and Dartford Gas Companies, and the Gaslight and Coke Company.

Manchester Corporation Bill, by the Cheshire County Council, the Stockport Corporation and others, and the Levenshulme and Stretford Urban District Councils.

Padiham Urban District Council Bill, by the Accrington District Gas and Water Board.

Slough Urban District Water Bill, by the Conservators of the River Thames, the Eton Rural District Council, and the Slough Water Company.

South-West Suburban Water Bill, by the Surrey County Council, the Egham, Feltham, Southall-Norwood, and Staines Urban District Councils, and the Staines Rural District Council.

Stockport Corporation Bill, by Messrs. A. & H. Kellett and Kelletts, the Great Central and Midland Railways Joint Committee, and the Hayfield Rural District Council.

Swinton and Mexbrough Gas Bill, by the Mexbrough Urban District Council.

West Bridgford Urban District Council Water Bill, by the Nottinghamshire County Council, the Nottingham Corporation, and the Bingham Rural District Council.

South Molton Water Supply.—The Local Government Board having insisted that better means should be adopted for the filtration of the South Molton water supply, the Town Council of the borough appointed a Committee to visit Cardiff and Newport, and inspect the Candy system of filtration in use there. They presented their report to the Council yesterday week, recommending the adoption of the system. The Mayor (Mr. W. Moor) said that, so far as the deputation could see, it was a perfect system of filtration, very simple, and inexpensive to work. The cost of the filter-beds would be £250 each; but they would have to be placed in a house for protection against frost. A man could give them, on one day in a week, all the attention they required. Mr. W. Sanders said he believed the old filter-beds might be made to serve still longer. The Medical Officer of Health replied that the water was practically not filtered at all now. The system proposed was very efficient. The Council adopted the Committee's report, and decided to consider in private the details of the scheme.

Exeter Gas Company and the Corporation.—According to one of the local papers, the controversy between the Exeter City Council and the Gas Company respecting the public lighting has had somewhat unfortunate results for the ratepayers. A majority of the Council decided, after a good deal of discussion, to light certain of the streets by electricity. It is now said the electric lighting is not only costing more than gas lighting would have cost, and that the illumination is inferior to that which the Gas Company guaranteed to give, but that the ratepayers are losing money in another way. Since the majority in the Council gave such unmistakable evidence of their hostility, the Gas Company have found that it is more convenient, and no more expensive, to obtain the greater portion of their coal by railway instead of by sea. The consequence is that the city loses the dues which the Company formerly paid for the transport of the coal by canal to the wharves near the gas-works. These dues, it is said, amounted to several hundreds of pounds in the course of the year; and their loss must have a very bad effect on the revenue from the canal.

LEGAL INTELLIGENCE.

WATER SUPPLY TO CHESTER WORKHOUSE.

The Question of "Domestic" Supply.

In the Court of Appeal, last week, Lords Justices Vaughan Williams, Farwell, and Kennedy had before them an appeal by the Guardians of the Poor of the Chester Union against the judgment of Mr. Justice Jelf, to the effect that they were not entitled to require from the Chester Water Company a supply of water for the workhouse on "domestic" terms—*i.e.*, at a percentage on the annual value of the premises—but must pay for it by meter. The proceedings in the Court below were reported in the "JOURNAL," Vol. XCVII., pp. 42, 229.

Mr. DANCKWERTS, K.C., Mr. MONTAGUE LUSH, K.C., and Mr. ELLIS GRIFFITHS (instructed by Messrs Chester, Browne, and Griffiths) appeared for the appellants; Mr. BALFOUR BROWNE, K.C., Mr. J. R. RANDOLPH, and Mr. MAURICE GWYER (instructed by Messrs. Busk, Mellor, and Norris) represented the respondents.

Mr. DANCKWERTS, in opening the appeal, said the question was simply whether the Guardians could claim a domestic supply of water, or whether the plaintiffs were entitled to say that the Guardians carried on a business at the workhouse, and were only entitled to a supply as for trade purposes. He put in a plan of the premises, and described the various blocks—viz., the porter's lodge, offices, coachhouse and stable, the observation wards, the main building in which the paupers were housed (including the kitchen and laundry, workshop, and piggeries), three buildings used as hospitals, connected by a covered way, the imbecile ward, and a church. Mr. Justice Jelf had held that the whole of these buildings formed one "dwelling-house," while he (Counsel) submitted that they were separate, though he did not think that it really made any difference if the Acts were properly interpreted. Those in question were the Company's own Acts of 1857 and 1874, and the Water-Works Clauses Acts of 1847 and 1863; and he proceeded to read the various sections bearing upon the case. He drew particular attention to the fact that a supply might be required for any "house" or "part of a house" for domestic purposes; but section 22 of the Company's Act of 1874 provided that no person should be entitled to require a supply to "any dwelling-house," omitting the words "or part of a house," except by meter or by special agreement, where any part of such dwelling-house was used for any trade or business purposes for which water was required. Two questions arose on this section, either of which, if decided in his favour, was sufficient for him. He submitted that the section meant, first, that the Company were not to be compelled to supply water to a dwelling-house as a whole, where part of the house was used for trade or business; and, secondly, that "trade or business purposes" meant commercial purposes. Having argued these points in some detail, Counsel submitted that the learned Judge was wrong in holding that the whole of the buildings in question formed one dwelling-house, which he (Mr. Danckwerts) suggested was the foundation of the judgment. He then cited the well-known Liskeard case—in which Lord Coleridge held that a workhouse was a dwelling-house, the inmates being considered as members of one family—and several other cases in which decisions had been given upon the question of what was a supply of water for "domestic" purposes. He then went on to an action tried before Mr. Justice Buckley, which was nearest to the present case—viz., *South-West Suburban Water Company v. Guardians of Marylebone.** This he dealt with at some length, and submitted that the learned Judge was wrong in holding that the carrying on of a pauper school was a "business," at any rate in the sense in which the word was used in section 22 of the Chester Company's Act, but that he was right in deciding that where a business was carried on in connection with a dwelling-house, there should be separate supplies—one for domestic and the other for trade purposes. He also submitted that the learned Judge was wrong in holding that steam for driving machinery in the laundry was not a domestic purpose. It appeared to him that it was, and that in the present case the driving of two fans to ventilate the laundry was equally domestic. He then went on to refer to the cases of *Bristol Water-Works v. Uren*, where the question of domestic and non-domestic supply was dealt with, and *Barnard Castle Urban District Council v. Wilson*, where the question arose with regard to a swimming-bath at a school where there were 300 boarders. He cited from Lord Justice Vaughan Williams's judgment his explanation of the meaning of the words "domestic purposes," and submitted that the judgment in this case was entirely in favour of the appellants. Proceeding next to deal with the question of what was meant by the word "business" in the various sections where "trade or business" was referred to, Counsel suggested that it must be something *ejusdem generis* with a trade—something carried on for the purpose of gain; and he went on to describe what was done in the present case. He said the Guardians were only carrying out their statutory duties in providing for the maintenance of the paupers within the Union. Incidentally small sums had been received from the relatives of paupers, and years ago from other Unions, who sent paupers to Chester for convenience. But this did not affect the principle. A great deal was made about the keeping of pigs at the workhouse; but he submitted that this was only incidental to the work of the place, for the purpose of consuming the refuse, and, of course, they had to be sold from time to time. On the whole, he contended that the appellants did not carry on any "business" within the meaning of the section. Counsel cited one or two other cases bearing upon the point he was arguing, and then proceeded to comment on the particular sections in which the question of domestic or non-domestic purposes was dealt with.

Lord Justice VAUGHAN WILLIAMS suggested that if Mr. Justice Jelf was wrong in holding that the whole of the premises were to be regarded as one dwelling-house, as Mr. Danckwerts suggested, the latter would be in some difficulty, as certain of the buildings could not be considered as dwelling-houses at all—for example, the church, the piggeries, and especially the mortuary. People did not live in the church.

Mr. DANCKWERTS said it had been held that it was not necessary to constitute a dwelling-house that persons should sleep there; but even if the whole building was to be treated as one dwelling, he submitted that no part of it was used for trade or business purposes. Dealing with sections 22 and 23 of the Act of 1874, Counsel contended that at the utmost they came to this—that a separate supply should be provided for any purpose which might be held to be non-domestic.

Mr. MONTAGU LUSH commenced his argument in support of the appellants' case by reading the judgment of Mr. Justice Jelf, commenting on certain passages of it, and then proceeded to read portions of the evidence, which he submitted was in direct conflict with some of the conclusions of the learned Judge. He said he should assume, for the purpose of his further argument, that the workhouse premises were one tenement; and on this footing he should consider section 22 of the Act of 1874. He submitted that this section plainly contemplated a double supply—one for domestic and the other for trade purposes; and that where it spoke of "any trade or business purposes for which water is required," it referred to water directly used for a business purpose, not to the ordinary use of water by persons engaged in carrying on the business. Counsel then went over the main points of the appellants' contention; stating that it was an abuse of language to speak of the Guardians as carrying on a business. Admitting that they might have to take by meter a certain small proportion of the water they required, they were entitled to a supply on the ordinary terms for the main purposes of the establishment. He further submitted that the water required for the Lancashire boiler and the piggeries was used for domestic purposes, though under section 46 of the General Act they had to be paid for as extras. It did not follow that a non-domestic purpose was a business purpose; and unless it was a directly business purpose it did not come within section 22.

Mr. RANDOLPH (in the absence of Mr. Balfour Browne) opened the case for the respondents. He pointed out that from 1876 to 1901 the Guardians paid for their water supply by meter; the charge coming to about £200 a year, on which a special discount of 10 per cent. was allowed. In 1901 the question was raised which led to this action; the Guardians having passed a resolution requesting the Water Company to remove the meter, and supply to the workhouse all the water required for domestic purposes, to be paid for according to the annual value of the premises, pursuant to section 43 of the Act of 1847. To this they adhered until after the decision of the Marylebone case, and tendered £12 1s. 3d. per quarter, based on the rateable value. This sum, of course, the Company declined to accept; and so the matter went on for some years, until the action was brought. The statement of claim set out section 22, and, on the footing that this applied, asked a declaration that the defendants were only entitled to have a supply of water by meter or by special agreement. Alternatively, if it were held that section 22 did not apply, then, on the footing of the decision in the Marylebone case, they asked a declaration that the defendants had not at any time prior to the issue of the writ become entitled to a supply of water for domestic purposes—it should, no doubt, have added at the domestic rate. It was alleged that the whole of the pipes and fittings were originally, and continued to be, arranged entirely with a view to a supply by meter; and various details were given of matters which were obviously business, or at any rate non-domestic, purposes. And until these were absolutely segregated from the rest, there was no power to require a supply at the domestic rate. Counsel went on to argue that the whole of the premises formed one tenement; but their Lordships intimated that they were quite satisfied on this point. He therefore went on to submit that no occupier could require a separate supply to a "part of a house" if he occupied the whole; the supply to a part could only be required where there were separate occupations. By section 22, which he read and commented upon, a man could not require a separate supply by meter for business purposes and another separate supply for domestic purposes; the whole supply must be either by meter or by special agreement. He further submitted that this section must apply because the learned Judge had found, quite properly, that the carrying on of the workhouse as a whole was a business. Some parts of the operations carried on there—such as the feeding and sale of pigs—were evidently so.

Lord Justice VAUGHAN WILLIAMS said this was really the crucial point of the case. It must not be assumed at present that he was satisfied that the learned Judge was right, either in holding that the whole of the premises were used for business purposes, or that the several parts which he specially referred to were so used.

Mr. RANDOLPH said his submission was that Mr. Justice Jelf was right, following Mr. Justice Buckley, in holding that the whole thing was a business.

Lord Justice VAUGHAN WILLIAMS said "business" was a very difficult thing to define. It surely meant something more than performing a duty—a statutory duty. Could a rate collector be said to carry on a business? "Carry on" was a convenient phrase; but the word in the Act was "used"—used for the purpose of trade or business. Would a District Registrar of Births and Deaths be said to use his house for business purposes?

Mr. RANDOLPH submitted that he would; but, he said, water would not be required for the purposes of the business. In the present case, it might be the duty of the Guardians to maintain the paupers. But if it was a business, it meant that it was their duty to carry it on; and if the Marylebone case was rightly decided, which he maintained it was, this clearly was a business. After dealing further with this point, Counsel went on to the specific matters of the pigs, the boilers, the wood-shed, &c., which he submitted were obviously business purposes for which water was required. Assuming that section 22 of the Act did not apply, the case came exactly within the Marylebone case, and there must be a dual supply; and defendants had never put themselves in a position to demand this—the whole supply coming through one main, and the various uses being inextricably intermingled.

Mr. MAURICE GWYER followed with a short argument on the question whether the carrying on of the workhouse was or was not a business. He also referred to the difficulties which might arise in connection with a double supply, and suggested that the object of section 22

* See "JOURNAL," Vol. LXXXV., p. 636.

was to overcome them. Therefore the word "business" should receive a broad construction, and the character of the premises, rather than the nature of the user, be the governing consideration. It relieved the Company of any obligation to supply a certain class of consumers except by meter or special agreement.

Lord Justice VAUGHAN WILLIAMS suggested that if this were the correct view of section 22, the next section could never come into operation at all.

Mr. GWYER thought section 23 had no reference to section 22. In reply to a question from the Court, he said that, in his view, every lodging-house keeper in Chester would be within the section, and would be unable to require a supply of water otherwise than by meter or by special agreement. But, apart from this, there were undoubtedly parts of the premises in question which were directly used for business purposes.

Mr. DANCKWERTS, in reply, submitted that the reading of section 22 contended for by the other side led to manifest absurdities, and there was no power to make the Water Company agree to any fair terms in the case of a domestic supply. He referred to the evidence at the trial, to the effect that there would be no difficulty in arranging for separate or extra payment for water used for non-domestic purposes, and alluded to the correspondence prior to the action, so as to show the attitude taken up by the plaintiffs; their position being that the Guardians were bound by the agreement originally entered into, and had no power to determine it. This position was never abandoned until they came into Court. He went on to contend that the only non-domestic purposes for which extra payment could be required were provided for in the scale of charges issued by the Company. In conclusion, he submitted that if the appellants had a right to any domestic supply at all, they were entitled to succeed in this action, because this was what the respondents had persistently denied.

Judgment.

Lord Justice VAUGHAN WILLIAMS said, in his opinion, it was absolutely necessary for the Water Company to bring this action; otherwise they could not effectively have enforced any payment of rates for the supply of water unless and until certain questions which were outstanding had been decided between them and the workhouse authorities. Further, in the course of the action, upon both sides, contentions were put forward which could not be sustained, which occupied a lot of time and involved a good deal of expense. The first question—and, potentially, the most important one—raised was as to the construction of section 22 of the Chester Water-Works Act of 1874: "No person shall be entitled to require nor shall the Company be bound to supply any dwelling house with water (otherwise than by meter or by special agreement) where any part of such dwelling house is used for any trade or business purposes for which water is required." This was a very unusual section, and probably the reason it was introduced was, as had been suggested, on account of the unusual provision in the Act of 1857, section 47, under which there was a positive obligation to supply water for other than domestic purposes. But he had not to trouble himself at all with how or why it was that section 22 was introduced. In his opinion, section 22 did not apply to the present case at all. The final words of the section were: "Where any part of such dwelling house is used for any trade or business purposes for which water is required." He was of opinion that, although the workhouse might and did use the water for non-domestic purposes, it was not true to say that the authorities used any part of the workhouse—treating for this purpose the workhouse as being everything within the outside boundary—for any trade or business purposes for which water was required. This was one of the points he referred to in saying that the Company had set up contentions which they could not support. Mr. Justice Jelf had held that the workhouse was used for business purposes. As he had said in the course of the argument, he was in considerable doubt about that. He thought the workhouse was used for the performance of statutory duties. He did not like to say he was quite certain of anything after the arguments they had heard; but he was strongly of opinion that it would be untrue to say that anybody carried on business in the workhouse. He had great doubts about it, which were strengthened by reading through the Water-Works Clauses Acts and the Special Acts; and when he saw the extent to which the Company had to supply free of charge or on favourable terms, where the water was to be used for the benefit of the public—as in the case of flushing sewers, fire-plugs, and such like things—he was the more inclined to say that the word "business" in this Act was not intended to cover the carrying out of statutory obligations imposed for the benefit of the community. Still, he did not know that he need differ from the conclusion of Mr. Justice Jelf about this; and it was not necessary to do so. He adopted the passage in the judgment of Mr. Justice Jelf, which said: "For the defendants it was contended that they are entitled to a supply for domestic purposes, though they admit that for non-domestic or trade or business purposes they will have to pay by extra payment"—that was, among other things, for water taken for non-domestic purposes—"according to statute, or by meter, or special agreement; and as they cannot help admitting that some of the purposes for which water is required at the workhouse are not domestic purposes, they have to maintain, and do maintain, that there will have to be separate supplies to meet these two sets of requirements, and to be paid for separately on different bases. They do not admit that any of the purposes are trade or business purposes; and therefore they say the 22nd section does not apply." Deciding in their favour that section 22 did not apply to this case, it still left them in the position where it was impossible for them to deny that there were two purposes for which water was used in the workhouse—one domestic, and the other non-domestic; and, in his judgment, they were bound to pay for the non-domestic supply. In taking this view, he was following the opinion expressed by Lord Justice Buckley in the case of *South-West Suburban Water Company v. Marylebone Union* (1904, 2 K. B. Div.). He showed there that where water was used for domestic and non-domestic purposes, the two may be separated, and water supplied for the domestic purposes paid for at the domestic rates, and that for non-domestic purposes at the rate fixed by the Statute applicable in the particular case—in the present case, the rate as provided for by section 47, a rate to be determined either by agreement or by reference to the Justices. There had been no agreement at all in the present case, and no reference to the Justices; and this brought in the words in the same judgment of Mr. Justice Buckley: "If, therefore, the defendants here wanted water for two such purposes, the plaintiffs were, I think, right in saying: 'As to the supply which you demand for domestic purposes, put yourselves in a position to confine the user to domestic purposes, and we will give you the supply.' As to the rest, the matter would have to await agreement between the parties." In his judgment, the workhouse never did put themselves in a position in which they were entitled to demand this double supply. They did not comply with the provisions of section 47, and they had never made any provision, by pipes or otherwise, for the segregation of the two supplies of water. Under these circumstances, what was the result of the action? Of course, the claim for arrears had gone—the Statute of Limitations applied. As to the declaration asked for, the first declaration, as he read it, was based upon the application of section 22; and as section 22 did not apply, such a declaration ought not to be made. Then, alternatively, the plaintiffs asked a declaration that the defendants had not at any time prior to the issue of the writ become entitled to a supply from the plaintiffs of water for domestic purposes." This was partly true and partly untrue, and would have to be altered. In substance, there would be a declaration that section 22 did not apply; a declaration that the defendants at the present moment were not entitled to have the two supplies, and would not be so entitled until they had complied with the provisions of section 47, or such alterations had been made in the supply as would segregate the two supplies. With regard to the costs, it was agreed that those which were directed to be paid by the defendants—extending even to the costs on the plea of the Statute of Limitations, as to which they succeed—must, of course, go. With regard to this appeal, there should be no costs on either side. A great part of the argument was upon the question whether or not section 22 applied; and under these circumstances it was impossible to say there had been a clear victory by the Water Company. But, on the other hand, defendants had also failed as to a great deal. In his opinion, the declarations that were offered in the counterclaim of the defendants were altogether insufficient and inapplicable. Under these circumstances, the right way to deal with it was to say, no costs of the appeal. As he had already said, he thought the action was rightly brought, and therefore there should be an order for costs in favour of the plaintiffs in the action.

Lord Justice FARWELL said he entirely agreed with the judgment just delivered, and did not propose to add anything, except to guard himself against expressing any decided opinion as to the meaning of the word "business," or whether or not this workhouse was a house used for business purposes.

Lord Justice KENNEDY also agreed. If it had been simply a question whether it was a business, he should have preferred to reserve his opinion; but on the question whether it was a business for which water was required, he entirely agreed with the President of the Court.

Lord Justice FARWELL then read the order which he had formulated, as follows: Discharge the declaration of Mr. Justice Jelf, and declare that section 22 of the Act of 1874 had no application. Declare that the defendants were not entitled to require the plaintiffs to supply the workhouse with water for purposes other than domestic purposes, unless and until they had agreed with the plaintiffs as to the terms and conditions of such supply; or, failing such agreement, as may be determined by two Justices, as provided by section 47 of the Act of 1857, and subject also to the provision at the end of the same section. He thought it would be right to add that the defendants were not entitled to use any water of the plaintiffs' for any non-domestic purpose unless and until such determination had been made. He did not think there should be an injunction; but they ought to say that defendants were not entitled to use the water until an arrangement had been made.

Lord Justice VAUGHAN WILLIAMS said he quite agreed, until there was a possibility of segregation. They did not want, of course, this workhouse to be without water. Would the plaintiffs be willing to allow a reasonable time—say six weeks—to try and agree; and if not, to make an application to the Justices?

Mr. RANDOLPH said he was quite willing—defendants, of course, paying by meter in the meantime.

Mr. LUSH: That would deprive the appellants of the benefit of the decision just given.

Lord Justice FARWELL said that when the terms were settled, they would relate back to the earliest time for which the plaintiffs could recover.

Mr. LUSH said this would meet the case.

Mr. RANDOLPH said they did not want to deprive the workhouse of water; but he did not think they would be able to make the segregation within six weeks.

Lord Justice VAUGHAN WILLIAMS said more time must be given, if necessary. It would not matter, as the plaintiffs' rights, when fixed by agreement or by the Justices, would relate back.

Mr. RANDOLPH said the plaintiffs would endeavour to get the defendants to agree to take it all by meter.

Lord Justice FARWELL said the order of Mr. Justice Jelf as to costs would be varied by directing that, in so far as they had been increased by the plaintiffs' claim for arrears, costs should not be paid by defendants; there would be no costs of the appeal.

COMPENSATION CASE AT STOCKPORT.

At the Stockport County Court last Friday week, his Honour Judge Reginald Brown, K.C., had before him a case in which the widow of a man named John Carney claimed under the Workmen's Compensation Act, 1906, to recover £287 11s. (being a sum alleged to be equal to three years' earnings of the deceased) from the Stockport Corporation, as compensation for her husband's death. On Dec. 12, deceased, who was a labourer at the Portwood Gas-Works, was found dead in the engine-house; and a Coroner's Jury returned a verdict that death was due to suffocation caused by inhalation of carbon monoxide fumes from gas. The Corporation denied their liability to pay compensation on the grounds that the injury was not caused by accident

arising out of or in course of his employment; that his death was not due to suffocation caused by inhalation of carbon monoxide fumes from gas, but was due to natural causes; that the deceased was in the employment of the Corporation for upwards of three years preceding his death; and that his earnings during those three years did not amount to £287 11s., but only to £184 7s. 9d.; that his earnings under any concurrent contract of service into which he had entered at the time of his death could not be computed in his earnings; and that the remuneration payable in respect to the services of the widow could not be taken into consideration in computing his earnings.

For the plaintiff, Mr. Leigh said the deceased had been employed at the gas-works as a labourer for about eight years. He worked in particular in the purifying-house; and it was his duty to attend to the lime which was used in the purification of the gas. He had also to see to the engine. On the morning of Dec. 12, deceased left home in his usual health. That particular morning something had gone wrong with the electric light; and the result was the purifying-house was in darkness. The men in consequence were unable to do their work there; and the engine therefore was not wanted. After breakfast, there was sufficient daylight to enable the men to go on with their work; and for this purpose they wanted the engine started. A fellow workman went to the engine-house, and on opening the door found Carney unconscious or dead. At first he thought he was asleep, and called to him; but there being no response he sent for the foreman. Artificial respiration was employed, and the oxygen cylinder was used with the hope of restoring vitality; but it was of no avail. A post-mortem examination of the body was made, and the doctor who conducted it came to the conclusion that death had resulted from suffocation caused by inhalation of carbon monoxide fumes from gas. A sample of deceased's blood was sent to a well-known analyst in Manchester, who confirmed Dr. Worthington's opinion.

Mary Ann Carney, deceased's widow, said her husband's wages were £1 4s. 4d. a week; and in addition to his labour at the gas-works he was employed as steward at the Brinksway Reform Club, for which he got 12s. 6d. a week. He had to find someone to clean the club, and she did it; receiving for her services 5s. out of the 12s. 6d. The last time she saw her husband alive was when he left to go to work on the morning referred to. Dr. Worthington said he was called in to see the deceased, and found him lying in the yard. Artificial respiration was being used; but when he saw deceased he was dead. The body was taken to the infirmary; and the same day he conducted a post-mortem examination. The peculiarity he noticed was the pinky condition of the blood, which was very fluid. There was nothing in the condition of the organs to indicate that the man had died from natural causes; and he came to the conclusion that he had died from asphyxiation caused by inhaling carbon monoxide from gas. He sent a sample of the blood to Mr. Thompson, of Manchester, who in his certificate confirmed witness's opinion as to the cause of death. The Town Clerk (Mr. R. Hyde) at this point said he was prepared to admit the certificate testifying the cause of death.

A lengthy argument then took place on a point which, it was said, had never before been raised under the new Act—namely, whether, in addition to the three years' wages at the gas-works, the widow could recover anything on account of deceased's earnings as steward of the club. The Town Clerk held that, as Carney was in the employ of the Corporation over three years, the compensation must be based on the actual earnings of the deceased as an employee of the Corporation, and that his earnings in any concurrent service could not be computed for purposes of compensation. He quoted the law on the subject, and said that if deceased had been employed by the Corporation less than three years, they would have had to take his average weekly earnings, in which case his wages as club steward could be taken into consideration. Mr. Leigh remarked that if the Town Clerk's contention was accepted, full compensation for concurrent services could be recovered, in the case of a man who had only been in the Corporation service two years and 51 weeks, but not when a man had been working a week longer. That was beyond common sense, and manifestly absurd.

His Honour said he was not at all impressed by the number of absurdities which might grow out of the Act. The point was a very curious one, but only one of very many that could be found in the Act. Though the Act was for the benefit of workmen, they could not possibly understand it with all its sub-sections and sub-divisions. With regard to the case itself, the first question to decide was whether or not death was caused by an accident received by deceased in the course of his employment. The Corporation were quite right in defending the action, as they were in duty bound to protect the interests of the ratepayers, and to see that the plaintiff proved her case. However much they might commiserate with the unfortunate widow, it was for him to see that the claim was strictly made out; and he thought it had been. The evidence showed that the man died from inhaling carbon monoxide fumes from gas; and no other cause of death was suggested. They could not find that the man had heart disease or any other disease. As to the compensation, under his reading of the Act, he was bound to say that, where the service was more than three years, they could not take into account the wages earned in concurrent employment. The widow would therefore be the worse off by £58, because her husband had worked for the Corporation more than three years. He could only give judgment for £184; and he made an award for that amount.

AN ESCAPE FROM A GAS-MAIN.

Question of Liability.

At the Salford County Court last Friday, before Deputy-Judge Leresche, an action was heard in which Mr. M. Redstone sought to recover £25 from the Salford Corporation, for damages sustained through gas escaping from a main and exploding. Mr. Lustgarten appeared for the plaintiff; while the Corporation were represented by the Town Clerk (Mr. L. C. Evans).

Mr. Lustgarten explained that on the evening of Nov. 25 last, a strong smell of gas was noticed outside Mr. Redstone's house. An intimation was sent to the police station at the Town Hall; and advice was given to turn off the gas at the meter. A plumber also was sent for; but before one could be found, there was an explosion. The wall of the house and the stock and furniture of the plaintiff were badly damaged; and injuries resulted to his wife and one of his children. He contended that, as the damage was caused by an escape of gas from the main under the street, it was for the Corporation to absolve themselves from liability, as it was difficult for anyone other than the Corporation to ascertain precisely how the accident happened.

The Town Clerk admitted the escape from the main; but he held that no reasonable amount of care could have prevented the accident. Mere escapes of gas did not make the Corporation liable; it must be proved that they had been negligent. There had been an escape of gas from the main; but the Corporation had received no information of it, and no man could possibly have foreseen the accident.

Plaintiff gave evidence, and in cross-examination denied having told an officer that the explosion immediately followed the lighting of a match in the cupboard in which his gas-meter was kept. For the defence, however, Police Constable Blakeley stated that plaintiff had certainly told him so; and another officer who had been on the spot immediately before said he had detected no smell of gas.

Mr. W. W. Woodward, Engineer and Manager of the Salford Gas-Works, and Mr. J. G. Newbigging, Chief Gas Engineer to the Manchester Corporation, both asserted that, even if the broken main had been laid bare five minutes before the accident, there would have been no external evidence to indicate what was about to happen. The main had been properly laid in every respect.

Mr. Lustgarten submitted that there was an insufficient system of inspection of the mains, and that the pipe was either not suitable, or was improperly laid. He argued that a corporation were not only bound to give a suitable gas supply by laying down proper mains, but they were bound to maintain the mains in an efficient condition.

His Honour decided that the case of *Greene and Haydon v. Chelsea Water-Works Company* was a complete answer to the plaintiff's contentions. If the Corporation had not possessed statutory powers, it would have been a different matter; but in this instance they were free from liability. There must, therefore, be judgment for the defendants.

Claim against the South Metropolitan Gas Company.

At the Lambeth County Court last Tuesday, his Honour Judge Emden and a Jury had before them an action brought by Mrs. Laura Cannon, the wife of a builder's foreman, to recover damages from the South Metropolitan Gas Company for personal injuries sustained through the alleged improper fixing of a penny-in-the-slot gas-meter. Mr. Hardy appeared for the plaintiff; Mr. Clavell Salter, K.C., and Mr. Rostron represented the Company. It appeared that the defendants had placed the meter in question on the first floor of a house in Peacock Street, Newington Butts, in the occupation of the plaintiff. On the 26th of June, she placed a penny in the meter, and while in the act of turning the lever for the coin to drop, the meter came away from the wall and fell from the bracket, knocking her on to the stairs. Her case was that the meter was fixed on a bracket in a mere lath-and-plaster partition, instead of being placed in a more secure position. Mrs. Cannon, an elderly lady, gave evidence to the effect that when the meter came away she fell backwards downstairs in an unconscious condition, and since the day of the accident had been incapacitated from doing her usual domestic duties. In consequence of this, her daughter, who was in employment and earning 16s. a week, had had to leave it in order to nurse her and do the house work. In answer to Mr. Clavell Salter, witness said the only reason why no complaint of the accident was made to the Company until the 9th of July was that at first she did not think the injuries were quite so severe as they turned out to be. Dr. Payton said he found bruising on the plaintiff's back, and a slight mark on the top of the head. He had paid her about twenty visits. Kate Cannon, a daughter of the plaintiff, in reply to Mr. Salter, said that no postcard was written to the Company till July 3, when the meter was hanging about a foot from the ground, whereas it had originally been about 5 feet. The bracket had come away from the wall, and this with it. For the defence, Mrs. Argent, living underneath the plaintiff's flat, said Mrs. Cannon complained to her that when she was on the steps she fell while putting the penny in the slot of the meter—a piece of wood, which the witness assumed was the bracket, coming away with her. Officials of the Company gave evidence to show that the meter was hanging by its connections, and that though part of the bracket had moved the remainder was secure to the wall. The walls were strong, and were not lath-and-plaster. Mr. Salter said the defendants' views were that the statement made by the plaintiff that she fell off a pair of steps was correct; and he submitted that there was no negligence on their part in fixing the meter. The Jury returned a verdict in favour of the defendants, and judgment was accordingly entered for them, with costs.

Embezzlement by a Collector.

Before the Coventry Bench, on the 10th inst., Charles Henry Windridge, until recently a slot-meter coin collector in the service of the Coventry Corporation, was charged with embezzling £1 4s. 9d., £1 3s. 1d., and £1 14s. 6d. on different dates. The Town Clerk, who prosecuted, mentioned that there were about 9000 penny-in-the-slot gas-meters in Coventry, and four collectors were employed. They were each supplied with a counterfoil receipt-book and when they emptied a money-box they entered in the counterfoil book the name of the consumer, the state of the meter-index, and the amount received. The collector was also required to give a receipt. In the present case, the defendant received a sum of 2s. 6d. from one house, but did not give any receipt. He went to another house and was paid £1 14s. 6d. The latter sum was not handed over or accounted for. Defendant pleaded guilty, and expressed regret. The Town Clerk said the Gas Committee did not wish to be hard upon the accused, as he was a young man. The Bench bound him over under the Probation of Offenders Act; his father becoming surety for him. The Chairman expressed the hope that the case would be a lesson.

SOUTH METROPOLITAN GAS COMPANY.

The Ordinary Half-Yearly General Meeting of the Proprietors of this Company was held last Wednesday at De Keyser's Royal Hotel, Victoria Embankment, E.C.—Sir GEORGE LIVESEY in the chair.

The SECRETARY (Mr. Frank Bush) read the notice convening the meeting and the minutes of the last ordinary and extraordinary general meetings.

The seal of the Company having been affixed to the "Register of Proprietors," the report and statement of accounts, which have already appeared in the "JOURNAL," were taken as read.

The CHAIRMAN: Ladies and Gentlemen,—We have to welcome you to this new place; and, on behalf of the Directors, I may express our gratification at finding such a good meeting assembled here. The reason we left the other place was that our meetings being very large we were obliged to use the Great Hall, which was so noisy that no one could be heard. I think we have found certainly a very quiet home. It is my duty to move—"That the report and accounts now presented be received and adopted, and the report entered on the minutes."

THE ITEMS IN THE REPORT.

I shall take the report as a text on which to make certain comments; and perhaps it will be as well to deal with it paragraph by paragraph. The first sentence is a satisfactory one—an increase of 1⅓ per cent. in gas supplied. It was considerably greater—in fact, there was a very notable increase in the early months of the half year; but in the later months the mild weather caused a reduced consumption. So that the net result of the half year was 1·36 per cent. increase. It is really a matter of surprise that there is an increase of this kind; but it is because (this has been mentioned before, but there is no harm in referring to it again) of the fact that the incandescent mantle is still being brought into increasing use, and improvements have been made in the mantle whereby a very much greater lighting effect is produced from a given quantity of gas. I think I am right in saying that the increased efficiency is equal to about 50 per cent.; we get 20 candles per foot as a maximum with the upright mantle, and something like 30 candles with the inverted one. The inverted burner is a much prettier and more decorative article, and the saving of gas is very great indeed. It may be said, "That is a disadvantage to the gas company." But we must not look at things in that narrow way. If the mantle had not been invented, I think it would have gone rather hardly with gas as a lighting agent. However, with the mantle we are not only able to supply the public with the cheapest light—and a long way the cheapest—it has ever had, but I am quite content to leave it to impartial observers to say whether it is not a long way the best. It is not for us to run down other lights; but we can point to the advantages of our own. When you consider that we are getting an efficiency of 25 candles per cubic foot of gas—I am not overstating it—and the best flat-flame burner did not give us 3 candles per foot, the consumer is getting eight times as much light from the same quantity of gas, and, of course, he burns less gas; but it establishes, and firmly establishes, the position of gas as an artificial light. The Directors say they are surprised that gas has held its own in the way that it has.

RESULTS OF THE HALF-YEAR'S WORKING.

The second paragraph of the report deals with the results of the half-year's working, and it explains why the price of gas had to be increased, and why, with that increase, we are not making a large surplus profit. The policy of the Company has always been, for very many years—almost as long back as I can remember—to supply gas at the cheapest possible rate; and whenever we have seen our way to make a reduction, we have reduced the price. I do not know that there is another company in existence which in our circumstances would have reduced its price as we did in 1904 to 2s. per 1000 feet. We had a surplus, and we had reason to believe that we should be able to make both ends meet. But there was a very serious falling-off in the coke market the following half year; and from 1904 to 1907 (June to June) we were very hard pressed indeed to make ends meet—in fact, we did not do it. If we had had an additional 2d. per 1000 cubic feet, we should have had a large annual surplus and a very large undivided balance to bring forward to meet the increased cost of coal. But we gave the public the advantage; and when coal rose, we had to ask them to pay their share. On this half-year's accounts we are short something like £8000. But if these accounts had been adjusted, the result would have been different. For instance, about three weeks are needed to take the indices of the meters, beginning some time before Christmas, and all the consumption that takes place after the index is read till the 31st of December is not brought into the December account, but goes into the June account. Correspondingly, the consumption in the latter part of the month of June is paid for in the December half year. But, seeing that three times as much gas is burnt in December as in June, the difference amounts to something very considerable; and if we had taken credit for the gas burned up to the 31st of December, but not brought into charge, we should have had quite sufficient to meet our dividend without any deficiency whatever. However, the result is that we are about £8000 short; but this £8000 will be more than met in the current half year. There is, however, an exceptional item in the revenue account which accounts for more than £8000—"Law charges, £10,449;" and this, with the exception of about £800, is the Company's share of the costs of the appeal against the rating assessments.

THE RATING APPEAL.

We have not paid the whole of this £10,000—in fact, only about £5000; and we might very well have let it stand over to the current half year. But we thought it better to put it in this half-year's account, in order to draw special attention to it. We were forced into this appeal by the contention of a Rating Surveyor that certain articles ought to be included in the assessment. The law, which has been in force for forty years and more, has been that gas-meters and fittings are not rateable—being tenant's, and not landlord's fixtures. There came a great increase in small meters—slot-meters—supplied to the class of weekly tenants; and with them we supplied, in a great number of cases, cooking-stoves, and we also put all the fittings into the houses. The rating people contended that, while ordinary meters were not rateable, these slot-meters were rateable—the meters, stoves, and fittings. The Company have spent well over a million of money in putting these meters, stoves, and fittings into 220,000 working-class dwellings. The rating authorities said that these ought to be rateable. We said "No;" and we could not accept their proposition. So we carried our appeal against them to the Sessions, and the decision was against us; the Court going so far as to say—they did not give an exact decision, but they said, "If we were called upon to decide, we should say that these things are rateable;" and they simply dismissed our appeal without going into the figures. Fortunately, however, the same question had been raised in the Ipswich Gas Company's rating case; and there the Recorder who decided it said these things were not rateable. Then the rating authority, assisted by certain London rating authorities, as we have reason to believe, carried the matter to the Divisional Court. It was heard before three Judges; and they did not call upon the Counsel for the Gas Company to refute the arguments of the rating people, but gave a unanimous decision that these things were not rateable. Now this has placed the matter in a totally different position, and we are in a far better way to resist the attacks of these persons. It may be said "What a large sum £10,000 is;" and the Unions have to pay another £5000. The total cost of these rating appeals is about £15,000—going into the pockets of the professional people engaged in the matter, at the expense of the ratepayers and gas consumers. It may be said, "Why spend money in this way?" I am reminded of a statement by the proprietor of Hay's Wharf, Mr. Hugh Colin Smith, some fifteen years ago, during a strike. I said to him, "Fighting is expensive;" and his prompt reply was, "It is cheaper than giving way." I think we shall find that contesting a thing which is unfair on the part of the rating people, whatever it costs, will be cheaper than giving way. Now I have to deal with another matter in connection with that.

THE FEES OF EXPERTS.

The bills of costs were very extravagant. One man, Mr. Dinwiddy—the Rating Valuer for the Unions against whom we appealed—or his firm, made a charge of £3239 against the Company for professional services. We have to pay the costs; but that bill was subsequently taxed down to £739. The balance of about £2500 has to be paid by the Unions that employed him. I will just give you one or two specimens of his charges. He has been acting for these Unions for a good many years; and he has an agreement with them for certain allowances. Among them is this: That if a case goes to the Sessions, he is to be paid 5 guineas a day for attendance in Court. This was one case, though there were four Unions in it. There was only one estimate to be made—it was treated as one case at the Sessions. There were seven days' sittings; and his proper charge, according to his agreement, I should think, would be 5 guineas a day. But he charged 5 guineas a day to each of the four Unions for his seven days in Court, or 20 guineas a day, instead of 5. There are other items, such as "Preparing Valuation" and so on. In the case of Woolwich, he charged 136 days at 5 guineas a day; in the case of Bermondsey, 110 days at 5 guineas a day, and the other two Unions 1⅔ per cent. on the valuation, the total for the four Unions for preparing the valuation being £1711. But it was only one calculation that he had to make; it would be the same for one Union as for twenty. The principle on which they go is to ascertain what is the total rateable value of the Company. Having found this, it is a simple rule-of-three sum to ascertain how much of this rateable value should be apportioned to each Union. The total was ascertained, and the amounts for the four Unions—Greenwich, Woolwich, Bermondsey, and Lewisham—calculated. But there was also the parish of St. Paul Deptford, where we agreed with the Valuer, Mr. Eve; but St. Paul being in the Greenwich Union, the Greenwich Union said: "No; we will not agree." And Mr. Dinwiddy makes a charge for estimating the rateable value in St. Paul, Deptford. It was a simple rule-of-three sum; but he charges £100 for making the calculation. Then he says he has written 799 letters. I cannot see how. But he had to deal with four sets of solicitors; and I suppose that when writing to one he had the letter copied and sent a copy to each of the other three. A lawyer's charge is, I think, 3s. 6d. a letter; but he charges 5s., and I suppose if he sent a copy to each of the other three, he charges 5s. for each copy—making £1 per letter. Well, I do not think we should do right in letting the matter stop there. You will say: What is the use of bringing up these things at a meeting of this sort? I think it right that the public should know the facts. What effect has it on the Company? It has this effect: Under the sliding-scale, the shareholders and the consumers are partners. For every £7 10s. which the Company pay extra for anything—coal or what not—£6 10s. is paid by the consumers and £1 by the shareholders; that is the division. And if we gain £7 10s., or any number of £7 10s., £6 10s. goes to the consumers and £1 to the shareholders. The effect of this rating business has been that we have to pay £10,000 for costs, and the parishes have to pay another £5000. But we are not going to take it out of the pockets of the shareholders. Last June, we, of necessity, raised the price of gas. It would have been raised 2d. per 1000 if for coal alone; but it was made 3d. on account of the rating and the costs. The unfortunate consumers—and there are many of them here as shareholders—have to pay these costs; they do not come out of our pockets. What we desire is to sell gas as cheaply as possible, and we wish consumers to know that, instead of getting any benefit from the increased assessment, they sustain a very considerable loss, because we put the greater part of the increased assessment—six parts out of seven—on the price of gas. There is another professional man—and he is a gas man—to whom I must refer. I have been in the

gas industry all my life, and I have never known any official of a gas company act in this way against another gas company. But there is a Mr. Helps, the Engineer and Manager of the Nuneaton Gas Company, who acts on behalf of these rating authorities. He came to us as a friend, and we treated him as we always have treated a brother gas company's officer. Some will, perhaps, say: "What fools you were to do so." But we did; and this man acts for the rating authorities against gas companies and charged £697 for his services—taxed down to £474. I have written to his Directors about it; and they reply that it is a very difficult question to deal with. But I do not see the difficulty at all; for it seems to me that if any gas company have an official acting in that way, their course is plain to say: "Either drop it, or leave our service." For the credit of the gas industry, I am proud to say such a thing has never happened before; and I am also proud to acknowledge, on behalf of my brother engineers, that a true spirit of loyalty, goodwill, and brotherhood exists among us. This is the only exception I have ever known; and I feel it necessary to make this statement.

INCREASED COST OF COAL AND MINERS' HOURS.

The effect of the rates I have already spoken about; but there is another thing. The increased cost of coal has been due to the greater demand, of which I have spoken before. But another matter threatens us; and this I put before you as members of the public. Excepting in Durham and Northumberland, all the miners in the kingdom are in one federation; and they have for years been pressing for eight hours' work in mines by Act of Parliament—eight hours from bank to bank. Now, as the time taken in going to and from their work and getting meals underground amounts, on an average, according to the Departmental Committee's report, to 1 hour 39 minutes a day, this would reduce the actual working time to less than 6½ hours; and the effect of it would certainly be to considerably curtail the output of coal, and also increase the cost of coal mining. If there is curtailment of the output, there will necessarily and certainly be a rise in price. I am pleased to say a word for the colliery owners in this matter. They have been rather offended with us, and with me particularly, for objecting to, and protesting against, the greatly increased cost of coal last year. But I must say this for them, that the other day they had a deputation to Mr. Gladstone to urge upon him the disadvantages to the public of passing the Eight-Hours' Bill, assuring him that it would cause for a time a shortage of coal, which would increase prices, and that it would result in a permanent increase in the cost of getting coal. I give the coalowners credit for this action, because it would not affect them seriously; for whatever extra cost there might be in getting the coal they would put it on the price the public would pay. Therefore that action was honourable and disinterested. I do not mean that their other actions were not honourable; and I would rather say that action was commendable. On that occasion, Mr. Gladstone expressed surprise that the users of coal had not moved in the matter. I am happy to say now that users of all kinds are moving, and are protesting in all parts of the country against the Miners' Eight-Hours Bill. In the first place, there is not the slightest necessity for it, because if there is any body of men in the country who can fight for their own hand and protect their own interests, it is the coal miners. It is a Socialistic move, and is opposed to the rights of man. Why should the Government interfere with the way in which an adult man should work? He has full right to use his labour as he pleases, and not to have it restricted or limited by Act of Parliament when there is no harm done by him to anybody. That movement is on foot; and the Chambers of Commerce are moving—traders, manufacturers, gas companies, railway companies, ship owners, steel makers, and others are all moving. But what about the great bulk of the consumers of coal—the inarticulate millions, the people who cannot do anything? That leads me to ask the question: What is the good of Members of Parliament if they do not look after the interests of the people who cannot speak for themselves—the private users of coal, the whole people? I am speaking on their behalf as well as for the gas companies; for if coal is made dearer, gas will be dearer. We shall take an opportunity to urge that this Miners' Eight-Hours Bill will inevitably result in an increase in the price of coal, and we shall transfer it, at any rate in the proportion of 6 to 1, to the consumer. I would suggest that if any ladies or gentlemen here have any influence with Members of Parliament, they should urge them to resist this measure.

RESIDUAL PRODUCTS.

The next paragraph deals with "Products;" but I will not take up much of your time with that. If there is an increase in the price of coal, the price of coke goes up; and that is satisfactory. But tar is worse than it was a year ago; and the point is this—that notwithstanding the valuable products obtained from it, tar is now worth only its fuel value. The Manager and one of his men at our tar-works has invented a very effective tar-burner; and all the steam required for the works is generated by the burning of tar. It answers our purpose better to burn it than to distil it; for, after all the trouble of distilling, the only return we get is about the fuel-value of the tar. Let it be burned as much as possible, or used for making roads, or anything else to take the tar out of the market. With sulphate of ammonia we have done better—£62,000 against £51,000. That is the result, not of better prices, but of better working. There has been a great improvement, due to our Engineers, in the extraction of ammonia from the gas; and that is a very useful help.

THE DIRECTORATE.

The last paragraph but two refers to a personal matter: "With great regret, your Directors refer to the loss by death of their late friend and loyal colleague Mr. Simpson Rostron." It is really with great regret; for he had worked with us as a colleague for nearly thirty years. He was devoted to the interests of the Company, and was thoroughly loyal to us all—that goes without saying. We feel his loss very much indeed. He was 75 years of age, and had been an active man all his life; and it pleased God to take him. I should like to add that it was Mr. Rostron who made it clear that Employee-Directors must be shareholders elected by shareholding employees. He thus contributed materially to the success of our co-partnership, which always had his sympathy and support. We have now to fill his place. The report tells you what is proposed; and I leave that to the meeting which will follow this. Then paragraph 7 refers to another change on the Board, Mr. Butcher retires. He and Mr. Austin were the first of the Workmen-Directors elected in 1898. The workmen re-elected Mr. Butcher three times, and Mr. Austin the same. He only retires because he has reached the retiring age. He felt unable to do his work with satisfaction to himself; and he has taken his pension. Of course, this involves retirement from the Board; and I can only say that of all the advantages of co-partnership, and of all the pleasant things about it, I think the Workman-Director stands first. More loyal, thoroughly true, and devoted men to the Company could not be found; and they are a credit, not only to themselves, but also to the workmen who elected them. Over and over again have the workmen elected the same men; and now Mr. Butcher's place has to be filled. There were a good number of men qualified—160—and eight or nine of them were candidates for the post. We were very glad to see an active competition; but by our scheme no man can be elected unless he secures an absolute majority of votes. When eight men stand, it is not likely that anyone will get an absolute majority. Consequently, the two who got the highest numbers had to stand again; and, at the second election, a final choice was made of Mr. H. T. Manley. The other day I was in a retort-house; and one of the defeated candidates was there. I said: "Well, you made a good fight of it." "Yes, Sir," he replied, "I did; and I am very well satisfied with the votes I got. But I am very pleased that Manley was elected. I think he is the best man that could be chosen." That is generally the verdict. Not that the others were not good men. I know them; and any one of them would have made a good Director. But it was left absolutely to the workmen shareholders, with no interference or suggestion from us as to who we thought would be best; it would have been impertinence to do anything of the kind. Mr. Manley is the choice of the men; and if they are satisfied, we certainly are.

THE COMPANY'S SALARIES AND WAGES BILL—A SIGNIFICANT ITEM.

I do not know that there is anything further to say; but there is one paragraph below the revenue account which is new—it is no part of the report or of the accounts. But there are those who say: "The Gas Company pay £300,000 a year profits; compare this with what they pay for labour." There was a Member of Parliament who said that. He took one item from the revenue account—"Wages, carbonizing, £59,000"—and then said: "Look what they pay in dividends and interest. See how they exploit the labour market." Well, he ought to have known better, because in those accounts other items are shown. So I wrote him on the subject; and we now put at the bottom of the accounts: "The total amount paid in wages for the half year was £270,957 1s. 11d., and salaries for the half year £34,576 5s.," or over £600,000 a year paid in wages and salaries. How important it is that the services rendered for this £600,000 should be efficient; and we believe that our system of co-partnership is not only the best means, but the only means, for uniting the interests of Capital and Labour, and for getting honest and efficient service. It shows, at any rate, that this Company in which you are shareholders is a great benefactor to South London by distributing £600,000 a year in wages and salaries among the working people. We are doing what we can to give employment. We do not put in machinery for the purpose of displacing labour; there is no reason why we should do so. We like to employ the men; and the only reason for adopting machinery is when it is imperative for other reasons. The relations between ourselves and our workmen are inconceivably satisfactory. I have great pleasure in moving the adoption of the report.

Mr. JOHN MEWS seconded the motion.

REMARKS BY SHAREHOLDERS.

Sir FORTESCUE FLANNERY, referring to the great loss which the Company had sustained through the death of Mr. Simpson Rostron, said there was one observation which ought to be emphasized, and that was that in the proposal mentioned in the report for filling up the vacancy they had the very consummation of the principle of co-partnership. Hitherto, as shareholders, they had elected the ordinary Directors to represent the shareholders, and the workmen had elected Employee-Directors to represent the employees; but for the first time since the principle of co-partnership had become fully recognized they were asked that day, as shareholders, to elect an employee to the Board of the Company. He ventured to say this change, by which ordinary shareholders would elect one of the employees—as he had no doubt they would—to a seat on the Board, was an instance of the principle of co-partnership such as they had not had on any previous occasion. The principle had been established once before in the Chairman's case; but then the principle of co-partnership had not reached the point it had now reached. He felt sure there was not one of the ordinary shareholders who would not rejoice at this opportunity of showing the extension of the principle of co-partnership in wishing that Mr. Bush might give years of good service to the Company in his new capacity, considering that he had served the shareholders so well for such a number of years in the post of Secretary. (Applause.) There was one other thing he ventured to express; and that was with regard to the retiring workman, Mr. Butcher, who had ceased to be a Director in consequence of being no longer able to work at the bench. This was a certain amount of loss to the Company which had not perhaps been fully anticipated or provided for. Mr. Butcher was re-elected three times by the workmen to a seat on the Board. He was qualified to hold that seat so long as he was a workman of the Company; and the experience which he had gained during ten years of regular sitting would now be lost to the Company—not because Mr. Butcher was unable to continue active work, but because he was no longer able to take his share of physical work, which was the necessary qualification. He did not know how far the scheme of co-partnership provided for such a contingency; but he ventured to suggest that, in any future case where a workman had served for many years with satisfaction to everybody, it was not only a hardship upon him to resign, but a loss to the Company that he should be retired simply because he was no longer an active worker. He threw this suggestion out so that it might be considered in any similar case in future.

A SHAREHOLDER, referring to the rise in the price of coal and the increased anxiety it must necessarily cause the Directors, asked whether it had ever occurred to them to consider the desirability of co-operating with some company with a view to obtaining and working coal mines. He thought that if this were done it would save money and possibly strikes.

The CHAIRMAN: It has been thought of; but I am afraid it would greatly add to the anxieties of the Directors. As to the question of saving us the possibility of a strike, so far as we are concerned we are absolutely safe from that; but if we had a coal mine, I do not know—a coal mine under the orders of the Federation of Miners would be no joke, I can assure you. I have sometimes thought if we could find coal under the gas-works at East Greenwich, where we could employ non-Unionists, and have co-partnership, we should be all right; but to have a coal mine in the same district as other coal mines is rather a difficult business. I do not know that I need answer Sir Fortescue Flannery, because, indeed, there is nothing to answer; but I thank him for his suggestion. We cannot do anything now about such a case as that of Mr. Butcher; but it must be remembered that his retirement gives the workmen shareholders the interesting and educative work of electing a successor, which has brought another good workman to the Board.

The resolution for the adoption of the report was then put and carried unanimously.

THE DIVIDEND.

The DEPUTY-CHAIRMAN (Mr. Robert Morton) proposed—"That a dividend at the rate of 5⅓ per cent. per annum be now declared, and that the warrants be transmitted to the registered addresses of the proprietors by post." Paragraph 5 of the report stated that the Directors recommended the full dividend payable under the sliding-scale, though it had not been customary, of late at any rate, to divide "up to the hilt," as it was called. But on the present occasion the shareholders were asked to do so; and he thought it would be all the more gratifying to them that the accounts of the half year, which had been an anxious and trying one, had allowed of this being done.

Mr. H. T. MANLEY said it gave him pleasure to second the resolution, more especially as about £6000 of the dividend would be shared among the employees of the Company. He would like to take this opportunity of thanking the shareholders for the support they had always given to the Board, and for carrying out the scheme which had proved an advantage to all concerned—shareholders, consumers, and employees.

The CHAIRMAN said that of all parties interested in the Company—consumers, employees, and shareholders—he thought the shareholders had not been treated quite so well as the others, as they had foregone dividends time after time very cheerfully. For this he was largely responsible; but from this moment he wished to burn his boats and bridges behind him, by promising that in the future he should never recommend a reduction in price unless he could see his way very clearly to pay the full dividend to which the proprietors were entitled. In previous reductions, particularly the last, they had it brought against them at the Sessions as a fault. The effect upon him was that in future he should look after the shareholders quite as much as the workpeople and the consumers; and the proprietors might depend upon it that they would have full dividends when it was possible to pay them. [The resolution was then carried unanimously.] He had now much pleasure in moving that Mr. John Ewart be re-elected a Director of the Company. The Ewarts had been in the Company from the start, and it was meet and proper that they should have a Ewart on the Board still. Mr. Ewart was a man of large experience in commercial life, and was just the sort of Director they wanted. He was a man also who was welcomed to the Board by everyone—workmen as well as ordinary Directors; and therefore he had great pleasure in moving his re-election.

A SHAREHOLDER seconded the resolution, which was put and carried.

The CHAIRMAN next moved the re-election of Mr. John Mews as a Director. He said that Mr. Mews' father was for many years a Director of the Phœnix Company, and he was afterwards a Director of the South Metropolitan Company. Though they did not recognize a directorship as being hereditary, still they were very glad to have the old stock with them. Mr. Mews was also a man devoted to the interests of the Company, and his experience in another direction—as a Banker and a Barrister—was very useful to them. He had great pleasure in moving his re-election.

Mr. DANIEL seconded the motion; and it was carried unanimously.

Mr. JOHN EWART said he was very much obliged to the Chairman for the kind words he had used in proposing the motion, and to the shareholders for the manner in which they had re-elected him. It was nearly twenty years since they first reposed confidence in him, and this confidence he hoped he should always enjoy. He also begged to return thanks on behalf of Mr. Mews.

Mr. W. EDGAR proposed the re-election of Mr. George Maughan Footner as Auditor to the Company.

Mr. T. WILKINS seconded the motion, which was put and carried unanimously.

Extraordinary Meeting.

The CHAIRMAN: By the Act of Parliament, the course of proceeding in filling a vacancy on the Board is different in this Company to that of others. If Mr. Rostron had died earlier, we should have had to call a special extraordinary meeting; but as his death was not very far from this meeting, we thought the two might be taken together. The difficulty with regard to shareholders electing Directors is that they do not know whom to elect; they do not know who their fellow shareholders are, and they are certainly quite unable to make a selection. Half-a-dozen might think one of their number would be a good Director; but that does not come home to the great body. In ordinary cases the Directors themselves fill vacancies; but in our case the shareholders have to do it. I do not think, after the announcement in the report that Mr. Bush is the only candidate, there will be any difficulty. The Directors believe it will be to the advantage of the Company. Mr. Bush has been Secretary since 1882; he has been a faithful and devoted servant of the Company, devoting his time and talents thoroughly to its service; he is a man whom we all completely trust, not only all the Board but the employees; he is the head of the office, and from the general clerical staff I have never heard a single word or breath of a suggestion that Mr. Bush was not fair and considerate and honest and straightforward with everybody. (Applause.) He has a large, unique knowledge of his branch of the business; and it is very important that Directors should be men conversant with the business of the Company. It is a very difficult matter for any Board of Directors to select suitable candidates; but we have no doubt in this case. (Hear, hear.) Mr. Bush, who is in his 58th year, would be entitled to retire on a pension when he reaches 65; but if we kept him at work as Secretary until he reached 65, it would be no use then putting him on the Board. There are comparatively few years of active life left to a man when he reaches 65, and then he wants rest and not work. There are years of work left in Mr. Bush now, and by electing him to a seat on the Board he will be of great service to the Company. It is the unanimous wish of the Board that he should be elected; and we shall welcome him most heartily. We know of no one whom we should prefer to him. I have much pleasure in moving—"That Mr. Frank Bush be elected a Director of this Company, in place of Mr. Simpson Rostron, deceased."

Mr. ROBERT MORTON, in seconding the motion, said he could have spoken for a long time with regard to the merits of Mr. Bush; but, after what the Chairman had said, he did not think it necessary to add anything.

The motion was carried by acclamation.

Mr. BUSH: Sir George Livesey, ladies, and gentlemen, I first of all desire to associate myself with the sympathetic remarks you have made concerning our late Deputy-Chairman. When he was appointed a Director, nearly thirty years ago, he made use of these words: "I enter office with a full determination and desire to do my duty, and to do so by finding out, and then promoting, what I consider the real interests of the Company." How devotedly he carried out his duties as a Director you all know, and I can say that personally I feel I have lost a true friend.

The CHAIRMAN: So have I.

Mr. BUSH: I thank you, ladies and gentlemen, for the honour you have conferred upon me by electing me a Director of this Company; the heartiness and unanimity with which the resolution has been passed are, I can assure you, a source of great pleasure to me. I could not be standing in this position to-day if it had not been for the support and encouragement which I have received from the Chairman; and I heartily and sincerely thank him for it. He has alluded in very kindly terms to my services. If I may be permitted to summarize them, they amount to this—that I have been faithful and loyal to my trust; and no greater compliment can be paid to any man. In taking my seat as a Director of this Company, I think I may claim to be familiar with the policy of Sir George and his colleagues, and not only familiar, but thoroughly in accord with it; and my best services are at your disposal for the advancement and prosperity of the Company. In using the word "Company," I, of course, include the three partners—the shareholders, the consumers, and the employees. I again thank you for the heartiness with which you have passed the resolution, and in conclusion I desire to thank my brother officers for their hearty and loyal co-operation, without which it would have been impossible for me to have carried on my work. I am glad to know, for I have been assured of it, that I possess their esteem and friendship. (Applause.)

The CHAIRMAN: I thought that would be what would happen. But we were in a little difficulty, because if Mr. Bush had not been elected, I do not know where we should have been. However, expecting this result, we are prepared with his successor—Mr. Frederick M'Leod. Not only have the Directors come to the conclusion that Mr. M'Leod is a most suitable man for Secretary, but I believe those with whom he has worked are in full accord with this opinion. Mr. M'Leod began in a humble way as a boy with the Company, and has worked his way up until he has occupied for some time the chief position in the office—dealing with the staff and consumers under Mr. Bush. We therefore feel that we cannot do better than appoint him as Secretary. The rule which the Company have adopted is that, in any promotion we can make, we first of all look at our own staff to see whether, among the workmen or the officers of any grade, there is any one suitable. The other day Mr. Carpenter wanted a foreman for outside work, and 21 men applied for it. The difficulty is to get foremen among working men; but Mr. Carpenter saw them all. He took any amount of trouble to find the best; and the answer he gave me was: "If I had 21 vacancies to fill, I could fill them all, because I had the greatest difficulty to determine which was the best—they were all so good." It is a satisfactory thing to feel we are growing, as it were, our own staff. I think we shall find in Mr. M'Leod an ideal Secretary. The Board elect the Secretary—that is their business; but you have to fix the salary. We have not elected him yet, as we have not had a meeting since Mr. Bush's retirement; but I think we may ask you what the salary should be. We consider it should be £1000 a year, starting at that. The salary in Mr. Bush's case has gone a good way beyond that sum; but we now think it should begin at £1000, and that a man should prove his worth. It is better to begin small, and give him an opportunity of rising. We therefore ask the shareholders to agree that the salary of the Secretary shall be fixed at £1000 a year. I beg to move this.

Mr. JOHN EWART, in seconding the proposition, said he had no doubt that Mr. M'Leod would, from his past record, justify the choice of the Board.

The resolution was put and carried unanimously.

The CHAIRMAN: Ladies and gentlemen, that concludes the business of this interesting meeting.

VOTES OF THANKS.

Mr. HOWLETT, in proposing a hearty vote of thanks to the Chairman and Board of Directors, said he thought the shareholders, in selecting Mr. Bush, had done the right thing, especially considering he had devoted twenty-five valuable years to the Company's service. It was said that creaking doors and pensioners lived a long time; and he trusted that Mr. Bush would live long in his retirement from the more arduous task of Secretary. He hoped the Chairman would go on and flourish like the green bay tree, and long preside over the affairs of the Company. He was sure the remainder of the Board had been

loyal to the Chairman. They were an attractive, good-looking Board, and certainly a business one. The proprietors had reason to be thankful that they had such a Board to conduct the business of their great Company.

Mr. COATES seconded the motion, which was carried unanimously.

The CHAIRMAN, in thanking the proprietors for the vote, said the Directors thoroughly appreciated it. As the meeting had been prolonged to a somewhat late period, he would not detain them further, except to say how thoroughly pleased the Directors were with the officers of all grades, and the workmen too. Therefore he had much pleasure in proposing a hearty vote of thanks to them.

Mr. ROBERT MORTON seconded the motion, which was put and carried unanimously.

Mr. CHARLES CARPENTER (Chief Engineer), on behalf of the engineering staff, begged to thank the proprietors for their kind vote of thanks. He said one learnt from the papers that a good deal of discontent existed in various parts of the country; but to his great satisfaction he knew of one area of South London where one could put his hand upon 5000 or 6000 happy workmen. Referring to the increase in the consumption of gas, he said that 1·36 per cent. might seem a small amount; but it was really 82 million cubic feet of gas in the half year—an amount sufficient to light up such a town as Canterbury, Worthing, or Torquay. This would give some idea of the large scale upon which the Company were working. As the Chairman had mentioned the question of the inverted burner, he might remark that only a few years ago they commenced the task of changing 22,000 public lamps from the flat-flame to the incandescent burner; and they were now experimenting with the inverted burner. The efficiency of the latter was much greater, and they would be shortly in a position to introduce an inverted lamp which would give the increased efficiency mentioned by the Chairman. They were all looking forward to the price of coal rapidly coming down. On behalf of the engineering staff, he might take this opportunity of conveying to the late Secretary their appreciation of the manner in which he had always acted towards them, and the earnest hope that his useful life might long be continued on the Board. He could assure the shareholders that the same support which had been accorded to Mr. Bush would be accorded to his successor. Before sitting down, he might be permitted to make one remark upon the question of water-slide chandeliers. Looking into the reports of accidents through the use of gas in South London and elsewhere, he found that nearly all the accidents arose from the use of these chandeliers. Everyone knew that this was an old-fashioned kind o appliance invented many years ago when flat-flame burners were used, and it was necessary to pull the chandelier down so as to bring the light nearer to the table. But now that incandescent mantles were employed this necessity was done away with; and the Board had, after discussion, come to the conclusion that the most satisfactory thing would be to offer to alter the water-chandeliers to sliding or fixed ones, as the case might be. Up to the present time, the Company had altered some thousands free of cost, with the result that, instead of being a dangerous appliance, it was now made a safe and artistic one.

The proceedings then terminated.

BRENTFORD GAS COMPANY.

A Good Increase in Sales—Improved Carbonizing Results—The Test Burner Question.

The Half-Yearly Ordinary General Meeting of the Company was held last Friday, at St. Ermin's Hotel, Caxton Street, Westminster—Mr. ULICK J. BURKE in the chair.

The SECRETARY (Mr. William Mann) read the notice convening the meeting; and the report and accounts were taken as read.

The CHAIRMAN said it was a very pleasing duty to move the adoption of the report and accounts on this occasion; for, as proprietors would see, they were exceedingly satisfactory. Epitomized, the Company found themselves in the position of being able to carry to profit and loss account £50,624, being some £9000 more than the balance on revenue account in the corresponding half of 1906. There had also been an increase in the consumption of gas of 7·01 per cent. He thought that, considering the position of affairs that the whole gas industry had had to face latterly, the results might be taken as exceedingly satisfactory. Dear coal and other things had had to be faced, and had threatened many a balance-sheet. While coal had been much dearer, however, the return from coke had been very good, and had largely tended to balance it; for whereas coal cost £11,440 more than in the second half of the preceding year, the returns for coke were £8186 better. So that really there was not much extra to be paid for coal. Wear and tear, however, was somewhat against the present accounts. As the proprietors were aware, a great deal had been done in reinstating the works, and this had affected the item of wear and tear. He had received a letter from Mr. G. C. Trewby regarding the present accounts. The proprietors would recollect that at this time last year Mr. Trewby called attention to the state of the Company; and as Mr. Trewby was a gentleman of long gas-works experience and a large shareholder, he (the Chairman) was sure it would be gratifying to the proprietors if he read the letter. Mr. Trewby said:

> As it is very doubtful whether I shall be able to go to the Brentford half-yearly meeting on Friday, I write to express my satisfaction with the last half-year's accounts as compared with those of twelve months ago. I will enumerate some of the comparisons which I have worked out—
>
> | | 1906. Cub. Ft. | 1907. Cub. Ft. | Increase per Ton. Cub. Ft. |
> |---|---|---|---|
> | Gas made per ton of coal . | 10,275 .. | 11,034 .. | 759 (or 7·3 per cent.) |
> | | Gals. | Gals. | Decrease. |
> | Quantity of oil used to enrich each 1000 c. ft. of gas. . | 3·35 .. | 2·77 .. | 17 per cent. |
>
> The above improvement in working accounts in a large measure for the profit made for the half year, which has increased by 21·6 per cent., notwithstanding the increased price of coal and, I suppose, of oil. I feel it my duty to draw attention to the above facts, which go to justify my criticism of twelve months ago.

Turning to the capital account, the most satisfactory feature in it was the condition of depreciation. This was a matter to which attention had been called on several occasions; but it was well to bear it in mind. In this half year, they had expended on new buildings, machinery, new and additional mains and services, and new and additional meters and stoves, the sum of £17,602; but depreciation had been charged to the extent of £15,795—leaving practically only £1806. It had been the policy of the Directors of the Brentford Company to sit on the capital cash-box as much as they could; and therefore he regarded the figures quoted as very satisfactory. In the report, it was mentioned that the Directors had decided to undertake the maintenance of consumers' mantles and burners at a small quarterly charge. This they hoped would meet a generally felt want, and still further conduce to the popularity of gas lighting. He and most other gas directors had felt that the time had come when they could not be too much in touch with their consumers. It was most important that, while they gave their consumers good gas, they should see that they made good use of it. He recollected a case in point. A friend of his living in a large house in London—a well educated and otherwise intelligent gentleman—complained to him once that the gas in his dining-room was exceedingly bad. He (the Chairman) asked him, "What about the gas in the rest of the house?" He said that it was all right in the drawing-room and other places. Of course, the Company could not supply one kind of gas to a dining-room and another kind to the other parts of the house. But what they were now saying to the consumer was, "If your gas is bad in your dining-room or any other room, send round to us, and we will put things right as far as we can. If your mantles are not doing well, we will put them in order for a small payment." He was quite convinced this would lead by degrees to a greater consumption of gas; and that was the policy the Board were following now. He felt sure the proprietors would endorse it. Of course, it cost money; but he was one of those who did not believe in nowadays running gas companies on the cheap. They must do something if they were to encourage the consumption of gas. He was sorry to say, for the first time for many years, the Company had been summoned for having a deficiency in their illuminating power. The Company were hampered by having an obscure Act of Parliament; and in it there were practically two test-burners specified. Not long since the gas they gave on certain days was quite all that was required, tested by the burner the Company used; but the authorities thought proper to test the gas in another way, and under different conditions. The case went against the Company; but they had got the Acton Bench to allow the Company to state a case for the High Courts. He should be glad to see one test-burner adopted by every gas undertaking in the kingdom, so that they could all make some sort of a comparison—gas company with gas company. The three London Companies and many others had a new test-burner; and if they could get it accepted at Brentford as well as in the case of other gas undertakings, they would then know exactly where they stood. In the Company's Act, a clause entitled them to have what was now known as the Brentford burner with a 7-inch chimney and fifteen holes, "or other approved burner." This was a proviso that appeared in most other Gas Acts; but in those other Acts it was specified who should approve of the other burner. In the Brentford Act there was no such provision. They went to the Board of Trade; and they said they had no power in this instance to say anything at all. They could not approve; and so there the Company stood. That being so, the Company could only say that, as the three Metropolitan Companies were allowed to use the new burner, it might be assumed to be an approved burner. Of course, if they were to be bound to supply gas of higher illuminating power than was required, it could not be done for nothing, and to that extent the consumers must be injured, and they could not expect to have the gas cheapened. He hoped the day would dawn when the authorities would be sufficiently broad-minded to see that it was to a gas company's interest to serve the public in what was the best possible way, without being bound by all these fussy regulations. As to the future, if he might prophesy at all, he should say the prospects of the Company were exceedingly good. The coal market was beginning to slacken a bit; and the Company were extremely well served. The Board were keen to do the best they could; and the Company had an admirable staff.

Mr. HOWARD CHARLES WARD seconded the motion.

Mr. J. REESON congratulated the Chairman and Directors on the remarkably good working, taking into consideration the large increase in the price of coal. He saw that they brought into account about £55,000 after paying the dividends, and they would take out about £63,000—or an increase of about £8000.

Mr. BOSHER said he had never seen a half-yearly report of the Company that had given him greater pleasure than the present one. Regarding the price of coal, he mentioned that, in connection with a Company of which he was a Director, a few weeks ago they bought 20,000 tons of coal at 1s. 6d. per ton less than six months ago; and he was sure the contractors would have been very ready to have taken another 20,000 ton contract at even less than the 1s. 6d. reduction.

The motion was unanimously carried.

Proposed by the CHAIRMAN and seconded by Mr. WARD, a dividend at the rate per annum of 5 per cent. on the 5 per cent. preference stock, of 12½ per cent. on the consolidated stock, and 9½ per cent. on the new stock was declared.

The retiring Directors (Lieut.-Colonel A. H. W. Cowie and Mr. H. H. Batten) were re-elected, as were also the Auditors (Mr. Monier F. Monier-Williams and Mr. Alfred Bevis).

The CHAIRMAN gave notice that at the next meeting he should bring under consideration the question of the provision of a pension fund for the officers, and the setting aside of a sum from the undivided profits to form a nucleus.

Mr. BOSHER proposed a hearty vote of thanks to the Chairman and Directors and to the officers. He alluded to the excellent work of the Engineer and Manager (Mr. Alex. A. Johnston) during the past six months, and, before concluding, mentioned the plucky fight that one of the Directors (Mr. Neville) had been making at South Leeds.

Mr. T. WILKINS seconded the motion, and it was heartily agreed to.

The CHAIRMAN responded, on behalf both of the Board and the officials, and stated that Mr. Johnston had done wonders during the time he had been with the Company.

TOTTENHAM AND EDMONTON GAS COMPANY.

Continued Development of Business and Works—Prospective Scheme to Bring Officers and Men into Closer Relations with the Company.

The Half-Yearly Ordinary General Meeting of this Company was held last Saturday, at the Offices, No. 639, High Street, Tottenham—Mr. CORBET WOODALL in the chair.

The SECRETARY (Mr. E. Topley) read the notice convening the meeting; and the Directors' report and the statement of accounts were taken as read.

The CHAIRMAN said it was his duty to move that the report and accounts be received and adopted. In doing so, he did not think many words were required to commend the report and accounts to the proprietors. A year ago—a time when the prospect of a considerable rise in the price of coal was disturbing all engaged in the gas industry—the Directors of the Company, almost alone he thought, were able to announce a reduction in price. The prudence of this step was at the time questioned; but the year's experience had fully justified it. Their action was dictated not only by the state of their finances. With the prospect of dear coal in front, they might, without fear of reproach, have delayed a little longer. They felt, however, that the concession to the consumers at such a time, when domestic fuel threatened to be very costly, would be peculiarly welcome; and they believed it had been so judged by the consumers. If risk was incurred, the time and the circumstances approved it; and they had reason to be gratified with the result. The half-year's trading showed an increase of rental sufficient to cover the amount—£5500—represented by the reduction, with £1500 to the good They had been able to maintain the works and plant in the fullest state of efficiency, and to pay an increased dividend; and they would carry forward an undivided balance practically the same as at this time last year. Coal and oil had cost the Company more by £8600, but of this sum they recovered, through improved value and some increase in quantities of products, £6300. Taken as percentages, raw materials went up 24 per cent., but residuals 48 per cent., compared with the corresponding half of 1906. He was reminded of an old colleague of his who, 30 years ago, often spoke of what he called the "elasticity" of gas manufacture. When coal was dear, coke helped to bear a portion of the burden; when one product was depressed, another was booming; and so matters managed to accommodate themselves to the dividends of the shareholders. That was at a time when the list of products sold by a gas company probably did not exceed half-a-dozen, though the purchasers no doubt largely increased the number in their treatment of them. Now, however, there were gas companies who had a list of more than 40 bye-products—all articles of commerce—resulting from the distillation of coal; and this tended still more to that equalization to which he referred, and to the general security of the whole. The £17,000 that had been added to capital was less than the proportion due to the increased business; and the employed capital in relation to sales was consequently again reduced. With growth like theirs, they could never hope or desire to stop capital expenditure; but their effort was always to keep it within the closest limits possible. They were again embarking on considerable outlay, having commenced foundations for a second bench of retorts in the new retort-house, which they hoped to have in use next winter. The time was also approaching when a new gasholder must be erected; and this would, of course, add materially to the capital account. Those of the shareholders who visited the works on the occasion of their last half-yearly meeting would endorse his assurance that the plant was maintained in a state of great efficiency. At the same time, the cost of manufacture was being steadily reduced; and they might consequently look forward, with a fair amount of confidence, to a further reduction in the price of gas before long. In this connection he might mention that a claim was recently made upon the Company for a large increase of rates. The rateable value of the Company's hereditament was raised from £11,207 to £23,767—that was, an addition of 112 per cent. The new assessment was absurdly high, and could not have been justified from any point of view. It was dictated, he had no doubt, simply by the knowledge that the business of the Company was largely and rapidly increasing—no attention being given to the disposal of the profits earned. That the Directors were entrusted with a dual responsibility, to the public as consumers as well as to the shareholders, was very imperfectly realized; it was, however, a fact fully accepted by the Directors, whose sense of obligation was equally keen towards each. As an illustration of the way in which profits were apportioned, he took the last alteration of price, which gave to the consumers £10,000 and to the shareholders £1296. Ten years ago the gas revenue was £68,558, the price 3s., and the sum divided among the proprietors and debenture holders £19,948, which was equal to an average return of 7 per cent. on the capital employed. For the year just completed, the figures were: Revenue £160,399, price 2s. 6d., dividend £33,192, return on capital slightly over 6 per cent. The percentages were: Revenue increase, 133·96 per cent.; profits divided, increase, 66 per cent.; price decrease, 16·66 per cent. He attended the Assessment Committee, and protested strongly against the arbitrary and irresponsible manner in which the rate had been made; and he was glad to say that the previous day they heard that the Assessment Committee had accepted the offer he made to them, which would bring the assessment to something under £15,000, instead of £23,767. The growth of the Company's business continued satisfactory. Though the early winter was phenomenally mild, they had an increase of 8¾ per cent. Electrical competition had been introduced in Tottenham and Edmonton, but had, so far, made no impression upon the sales. The number of consumers using prepayment meters is still growing very rapidly. In the first half of the past decade, the increase was 110 per cent.; in the second (just concluded), it was 150 per cent. He regretted to have to say that the number of thefts from meters was growing disproportionately. The number in 1906 was 362, or 1·4 per cent.; and in 1907, 774, or 2·7 per cent. Careful attention was being given to the matter; and the police and magistrates were helping the Company in their effort to suppress the crime. It was now certain that this year's contracts for coal would be at much lower rates than those which had recently obtained. The Directors were glad of this because the cost at present was burdensome and oppressive not only to their business, but generally. It was greatly to be regretted that such violent fluctuations as they had experienced recurred. He was not without hope that means of at least minimizing them might be devised. The threatened action of Parliament limiting the hours worked by coal miners was causing uneasiness if not alarm. The effect of the Bill, if passed, might prove less serious than was feared, as a very large number of colliers now worked a shorter day than eight hours. The proposed legislation appeared to be in support of an idea rather than to meet a serious need. The claim that employment would be given to a larger number of men seemed beside the mark, when it was not employment for men, but men to do the work that was the need of the day in colliery districts. A week of five days was not a long one, still less one of four days. Further to raise the value of any article was an unpromising method of improving the demand for it. Trades dependent upon cheap fuel for their life in England would be injured, and so employment for colliers as for others would be reduced. The Directors felt it was their duty to protest against this putting of the whole country under tribute in the interest of one class of workers.

Mr. GERALD T. WATSON, in seconding the motion, remarked that the report showed the position of the Company as good and thoroughly sound. The results of the operations of the half year were most satisfactory, and testified to the manner in which their works and affairs generally were conducted. With regard to the future, they might look forward with confidence, unless they were unduly harrassed by oppressive legislation.

Mr. HERBERT MICHELL asked whether there were any means of approaching the Government with reference to the Miners' Eight Hours Bill. He read an expression of opinion on the subject made by Sir George Livesey at the meeting of the South Metropolitan Gas Company, and proceeded to remark that a reduction in the output of one of the most (if not the most) important raw materials in the country must cripple most seriously a number of enterprises, and would be felt very acutely in the gas industry. He was sure that, as gas proprietors, they were all united in a feeling of satisfaction at the manner in which this and other companies had battled against extraordinary difficulties in the past year. They also congratulated the Chairman and Directors on the successful condition of the Company, and were reassured as to the future when they knew that matters affecting their interests would have the earnest attention of the Board.

The CHAIRMAN replied that he was glad to find that Mr. Michell was so much in accord with the views he had himself tried to express in the observations he had made on the subject of the Miners' Eight Hours Bill. They did feel, if the Bill reduced the number of hours of work, it must have the effect of putting up the price of coal. When, however, they remembered that, in parts of Durham at any rate, the miners' day was now six hours—six hours from bank to bank—and not eight, clearly, if these men were compelled to work eight hours, they would turn out more coal or work less efficiently. In regard to the action to be taken on this matter, he (the Chairman) would be one of the deputation to the Home Secretary in the course of a few days, to place the views of gas companies before him, and to do something, if possible, to hinder the passing of a Bill which they regarded as unnecessary.

Mr. MICHELL observed that the object of the Bill was not to compel the men to work eight hours, but to ensure they did not work longer than that time.

The CHAIRMAN replied that, if the Bill established eight hours as the working day, to that extent it would increase the number of hours' work. He quite admitted that no one could be compelled to work eight hours in a day, but he could be discharged if he would not do it.

The motion was unanimously carried.

Sir DANIEL F. GODDARD, M.P., moved the declaration of a dividend at the rate of 6¾ per cent. per annum on the "A" consolidated stock, and 5¼ per cent. on the "B" stock, both less income-tax. He remarked that the Company had fairly earned the dividend; and therefore the proprietors might feel every confidence in accepting it. The Chairman had spoken of the "elasticity" of the gas industry. No doubt, as the Chairman put the matter, it was absolutely correct; there were compensations in the industry on all sides. But his view of the elasticity of the industry was that it was largely due to the number of clever brains who were constantly at work devising new methods of management and new outlets of supply. Of no man in this particular industry, however learned he might be in gas manufacture, could it ever be said he had completed his education? There was always something fresh for him to learn. Anybody who really knew what the manufacture of gas meant, would understand how completely the whole system had undergone change in a period of ten or twenty years. Fortunately, they had officers and a staff who took advantage of every new device making for economy in manufacture and improved distribution and efficiency in use.

Mr. JAMES CLOUDSLEY seconded the motion, which was unanimously carried.

Mr. H. D. ELLIS proposed a hearty vote of thanks to the Chairman and Directors for their valuable services during the half year. He thought the accounts were striking indeed, notwithstanding the largely enhanced price of coal, which he thought worked out, on the gas sold, to something like 2d. per 1000 cubic feet increase compared with the previous year. Nevertheless, they had had to expend, and had properly expended, £17,000 more capital; but they had fully earned the dividend, and were carrying forward an increased balance of about £1300. A point which gave him much pleasure was to see the capital per 1000 cubic feet still further reduced. He thought it was now as low as 9s. 1½d. It was not very long ago that it was in two figures in shillings. They had steadily got it down to the present figure, and were selling gas at 2s. 6d. It was a rosy picture they had before them; and with the certainty that coal would be considerably reduced, there was no reason, he thought, why in six months' time they should not have quite as satisfactory a picture.

Dr. SCOTT seconded the motion, which was cordially passed.

The CHAIRMAN responded, and observed that there was nothing in the outlook to give them anything but perfect confidence in the future.

The Directors could not accept this vote without saying how much they appreciated the extent to which the success in which they rejoiced was due to the strenuous and devoted labours of their officers, staff, and workmen. He had been round the works that morning; and, as usual, one could not but be perfectly content with the excellent work their Engineer (Mr. A. E. Broadberry) had done. In a letter received from Mr. James L. Chapman, one of their Auditors, he remarked: "I must congratulate your new Secretary on the clear and satisfactory manner in which the books are kept." He read this note from Mr. Chapman, as it was the judgment of an impartial critic. Concluding his observations, he remarked that, before the proprietors met again, the Directors would have considered a method whereby they would bring both the officers and the workmen more closely into touch with the operations of the Company.

Mr. W. B. Randall seconded the motion; and it was agreed to.

Both Mr. Broadberry and Mr. Topley made suitable acknowledgment on behalf of themselves and their staffs.

The Chairman observed that Sir Daniel Goddard had referred to the developments in gas manufacture during the last ten years. He (the Chairman) might supplement his remarks by saying that ten years ago the Company were making 490 million cubic feet of gas; and last year the output was 1374 millions. In other words, in ten years the business had increased by nearly three times.

WANDSWORTH AND PUTNEY GAS COMPANY.

Low Price of Gas Maintained.

The Half-Yearly Meeting of this Company was held last Tuesday, at the Offices, Fairfield Street, Wandsworth—Mr. H. E. Jones in the chair.

The Secretary (Mr. Charles W. Braine) read the notice convening the meeting; and the Directors' report and the statement of accounts were taken as read.

The Chairman said the proprietors had had the accounts circulated among them; and the gist of the whole thing was, as the Directors stated in the report, that—in spite of the price of coal, in spite of the fact that they had not raised the price of gas, and in spite of the fact that this price was only 2s. per 1000 cubic feet (the lowest figure, he thought, almost in the South of England)—the balance of profit enabled them to recommend an undiminished dividend. And this, he might tell them, caused nobody much more surprise than the Directors, because the position looked very precarious. Many of the more important companies in the kingdom were conferring with their shareholders, and informing them that the price of gas had to go up; and though some had much fatter prices to deal with—2s. per 1000 cubic feet was not at all a fat rate, in fact it was a bed-rock charge—the Directors of the Wandsworth and Putney Gas Company forbore to make any increase. But the Board met in November for the purpose of considering whether they would be able to squeeze through without raising the price of their gas as from Christmas; and the Secretary then prepared an estimate for them. So closely did Mr. Braine guide them in this matter that—to his credit be it said—his calculations were within £600 of what was ultimately found to be the fact. The Board had managed to give the proprietors the dividend without any pinching or starving of the undertaking. If they looked at the expenditure on repairs and maintenance of the works and distributing system, they would find that the accounts were handsome, and compared favourably with the current charges of other companies. One reason for the successful results, which in some measure came as a pleasant surprise to the Directors, was that, in face of a comparatively mild winter, which had re-acted against increases—in the Metropolis they were all within the region of 1 per cent.—the Wandsworth Company had had an increase of 7 per cent. in the consumption. They trusted the consumers to do their best for the undertaking if the price of gas was kept down; and the consumers had justified this belief in them. They had, he expected, burnt gas instead of coal, because it was an abnormal increase to experience in a mild winter. It was this additional consumption, coupled with economies, that had enabled them to turn the corner. Unfortunately, they had had some accidents during the half year; but they had paid off the whole of the liabilities connected with them, so that there was nothing to be carried over—no burden to be met in the future. The number of consumers had in the past six months gone up by 725, of which no less than 607 were slot-meter consumers of the working classes—or classes near to them. There was no increase that gave him more pleasure to see than that of the prepayment system, because his conviction was that the slot consumer was likely to stay with them. Such a man afforded little temptation to any electric lighting company. He could not afford to buy much of their costly apparatus, or to pay their expensive rates. The number of stoves on hire had increased by 784, of which 561 were cookers. A man must have food; and these cookers were very useful, because they were employed every day. The heating-stove would probably be idle in the summer; but the cooker would be used during that time. The capital expenditure in the half year under review was £1358, which was required for the provision of meters, fittings, and stoves. The gross receipts for the six months were £81,539, which was an increase of £5683 over those for the corresponding period of the previous year. Of this increase, £3081 was for gas, £738 for meter and stove rents, &c., £1702 for residual products, and £161 for rents, &c. The expenditure, on the other hand, which was £68,481, was £4443 more. The balance of profit was £13,057, or £494 better than in the previous year. The amount required to pay interest and dividends at the rates recommended was only £357 more than the profit that had been earned; and as there was a considerable balance available, the Board had no hesitation in drawing upon it to the extent of this insignificant sum. The undertaking continued to grow very rapidly; and in this connection, the Secretary had given him some figures which the proprietors might like to hear. The sale of gas in the year 1907 reached nearly 1010 million cubic feet, the price of which was 2s. per 1000 cubic feet. Five years ago, the sale was only 754 millions, and the price was 2s. 4d. Ten years ago, the Company only sold 554 millions, or little over one-half the present quantity, and the charge was 2s. 3d.—showing that they were then on the way towards getting as cheap gas as possible. The figures regarding the numbers of consumers were of an extraordinary character. Ten years ago, they had 9949 customers; and last year the number had increased to 24,414, of which by far the greater proportion were slot-meter consumers. In fact, no less than 16,000 of their customers were people who bought gas by pennyworths. The capital was always a matter of concern to the Board, and was always carefully expended, so as to protect the Company from heavy rates, heavy income-tax, and dear gas. In 1907, the amount of capital expended per 1000 cubic feet of gas sold, was only 6s. 10d. Five years ago, it was 8s. 1d.; and ten years ago, it was 6s. 9d. They would understand that it was not very easy, when one got down to these figures, to reduce it very much more largely. He did not think there was anything very much he need call attention to, beyond these figures which Mr. Braine had so carefully put together. The report was, as usual, a very short one; and he did not think the proprietors would care to listen to any complaints from him as to the various people who might be interfering with them, or to any pæans of joy and triumph over the success of the Company. He was, however, sure that if the shareholders in the Company only knew the value of their shares, they would never part with them. He was rather surprised to see on the Stock Exchange the shares were sometimes quoted at prices which placed them in no better position than those of companies which, in his opinion, were not within 33 per cent. of their value. With this final remark, he formally moved the adoption of the report and accounts.

The Deputy-Chairman (Mr. T. A. Ives Howell) seconded the motion.

Mr. A. B. Bosher remarked that he was a Yorkshire shareholder, who had come at considerable trouble to attend the meeting. He, however, felt a great desire to be present, especially in view of the earnest way in which the Directors were looking after the interests of the proprietors. He was a shareholder in a score of gas undertakings; but the Wandsworth and Putney Company would take place second to none of them. They ought to be exceedingly grateful to the Board and the executive staff for the excellent manner in which they looked after affairs. He was convinced that there was not a gas company in the United Kingdom better served by the Directors and officers. But, of course, the keynote to the whole situation was the price of coal. He was a Director of a company—not a gas undertaking—who used a very large quantity of coal over the year; and it perhaps might interest those present to know that a few weeks ago he and a fellow Director went up to buy 20,000 tons. The agent of the colliery was full of assertions that the price of coal could not possibly be reduced one penny below the rate that had been paid six months previously; but nevertheless, before they concluded their bargain, they secured a a price which was 1s. 6d. per ton lower than the preceding contract. This was a pretty fair indication of the state of the coal trade. They in Sheffield, at any rate, were looking forward to a considerable drop. The opinion was not that the price was going down to quite so low as five years ago; but still if they could reduce it (say) 3s. per ton from the highest price, it would make a most material difference to the Wandsworth Company, and to all other gas undertakings. If when the Directors entered the market again for coal they were able to do anything like he had mentioned, it would be an exceedingly good thing for the Company.

The motion was then carried unanimously.

The Chairman next moved that dividends be declared at the following rates per annum: On the "A" consolidated stock 8 per cent., on the "B" consolidated stock £6 10s. per cent., and on the ordinary "C" stock £5 12s. per cent.

The Deputy-Chairman seconded this proposition; and it was at once agreed to.

The Deputy-Chairman next moved the re-election as Directors of Mr. H. E. Jones and Mr. H. S. Freeman. He said he attributed in a very large measure the great success of the Company to the fact that they had on the Board two gentlemen who had been so long devoted to the service of the undertaking. Mr. Jones had been, he believed, connected with the Company more or less for some 40 years, and Mr. Freeman for 37 years. After so many years' work as Engineer and Directors of the Company, it was of the greatest possible assistance to have them on the Board.

Mr. E. R. Ransome, who seconded, said it would be a great pity if the gentlemen named did not continue as Directors; for they could not find anyone who would be more earnest in looking after the interests of the Company.

This having been unanimously carried,

The Chairman returned thanks, and remarked that he came to the Company when he was 17 or 18 years old—that was, 47 years ago. He came in 1862; and in 1869 Mr. Freeman followed him, so that he had been there nearly as long.

On the proposition of Mr. Bosher, seconded by Mr. P. Denny, the retiring Auditor (Mr. F. H. Jones) was re-appointed.

Mr. Bosher proposed a hearty vote of thanks to the Directors, the Engineer (Mr. H. O. Carr), the Secretary, and the rest of the executive staff for their services; and he trusted they would be able to give the shareholders another equally good statement of affairs at the end of the next half year.

The proposition was seconded by Mr. P. J. Bird, and cordially agreed to; and the Chairman, Mr. Braine, and Mr. Carr all briefly acknowledged the vote.

Suicide by Coal Gas.—Last Thursday an inquiry was held regarding the death of Ann Hobart, aged 47, a widow, who was found dead in bed at a temperance hotel in Stamford Street, poisoned by coal gas. She had made a paper tube, and fixed it to the gas-jet. At the other end was a paper bell-shaped mask, which completely covered her face and head. To prevent the bell from slipping, it was secured to the pillow by means of a hat-pin. The Divisional Surgeon said that the arrangement for causing death was a very clever and ingenious one, and must have occupied her at least an hour to fit up. The Jury returned a verdict of "Suicide during temporary insanity."

DERBY GAS COMPANY.

Unprecedented Increase in Consumption.

The Ordinary General Meeting of the above-named Company was held last Friday, Colonel G. GASCOYNE in the chair.

The SECRETARY (Mr. H. Bullivant) having read the notice convening the meeting, the report of the Directors, with the accounts for the year ending Dec. 31 last, was presented. The Directors stated that the profit on the year's working amounted to £35,005, which with the interest on the bank account made a gross profit of £35,153. Adding £14,574 brought forward made a total disposable balance of £49,727. From this the Directors had appropriated £11,500 towards exceptional expenditure incurred during the year in modernizing the works, and after deducting this and allowing for the interim dividend for the June half year, and the interest on the debenture stock, deposits, and income-tax for the entire year, there remained a balance of £23,357 available for distribution. They recommended the payment of the standard dividend on the consolidated stock at the rate of 5 per cent. per annum for the half year ending Dec. 31, with an additional ½ per cent. for the whole year, making 5½ per cent. The Directors stated that they had concluded terms for the purchase of the undertaking of the Belper Gas and Coke Company and the Milford Gas-Works, and had deposited a Bill in Parliament this session for conferring further powers upon the Company. They believed these purchases would prove to be of great advantage to the Company. The Directors added that the increase in gas consumption during the year had been very considerable, and that satisfactory prices had been obtained for residual products.

The CHAIRMAN, in moving the adoption of the report, thought he might again congratulate the shareholders on a very favourable state of affairs. The Company had done a much larger business; and not only so, but the proportion, or the ratio of increase, was much greater than in any previous year. Referring to the expenditure side of the revenue account, he remarked that in his observations last year he foreshadowed the probability of having to pay a higher price for coal. This had been the case, as they all knew from their own experience. Coal had cost the Company £38,163, against £27,173 in the year 1906; being an increase of nearly £11,100. But the coal carbonized had been 75,131 tons, against 59,158 tons; the extra bulk being mainly due to the larger quantity of gas made. Of the £11,100, the extra cost for the additional quantity of coal, reckoned at the average price for the year, was £7600; leaving £3400 due to the rise in price. This coal would have cost considerably more had not the Directors secured large contracts well in advance; and in this connection he wished to say that they were well covered until Midsummer, and indeed later. The cost of purification had increased from £2568 to £3576—just over £1000—in consequence of the much greater amount of gas made, and also because lime and other products had gone up in price owing to dearer coal. The expenses of carbonizing amounted to £11,008, compared with £8973 in 1906; being an increase of £2035, due entirely to the extra tonnage of coal handled. For some time past the Directors had had under consideration the question of introducing more stoking machinery; and the results obtained from the working of the De Brouwer machines installed at the Cavendish Street works in 1904 had been so satisfactory that, on the advice of their Engineer (Mr. J. Ferguson Bell), they decided to fit up a retort-house at Litchurch with similar machines, together with the necessary coal and coke handling plants. This machinery was brought into use at Litchurch about the middle of December, and the Directors were assured by their Engineer that a very considerable saving would thereby be effected, and also that the work would be much less arduous for the men employed. With regard to repairs and maintenance of works and plant, the amount expended was £14,673, compared with £11,759, which, of course, was a very considerable increase. But attention had been drawn time after time to the absolute necessity of renewing and maintaining in perfect condition all the various portions of the works; and forecasts had been given that considerable sums would have to be spent in what might be termed modernizing the concern. During the last few years, much plant and machinery which the Engineer reported as unsuitable for present requirements had been replaced by modern and up-to-date inventions. For this purpose the Directors had, during the year, charged to the profit and loss account £11,000 for alterations and replacements at the various works. It would thus be seen that much had been accomplished in the way of improving and modernizing; but more had to be done to put the concern into an adequate position to cope with the increase in the demand, and enable it to make gas as cheaply as possible for the public. Considerable economies had already been effected, and the Board counted upon still better results in the near future; their intention being to make all the works thoroughly up-to-date by fitting them with the best and most modern machinery. Repairs, maintenance, and renewal of mains and service-pipes amounted to £2185, compared with £1736; the increase being due to a greater mileage of mains, a larger number of service-pipes, and the replacement of smaller mains and pipes by larger ones to meet their increased demands. Stove repairs and renewals showed an increase of £338, attributable to the fact that during 1907 the Company had supplied and fixed 1629 additional cookers and fires. The total number of these appliances which had already been supplied and fixed by the Company up to the present time amounted to 12,774; but this figure did not include those which had been bought and fixed privately. The total expenditure for the year on revenue account was £85,285, being an increase of £14,561 above that for 1906; and it indicated the progressive nature of the business. During the year ended the 31st of December last, the Company sold 772 million cubic feet of gas compared with 609½ millions made in 1906—an increase of 162½ millions, which was by far the largest in the history of the Company. The amount received for it was £88,493, or £12,980 more than was received for gas in the previous year. This unprecedented increase was due partly to the Company having a much larger number of consumers for lighting, heating, and power purposes, and partly to supplying the Midland Railway Company's large works at Derby since May last. In addition, there was included, for the first time, the gas sold in the districts formerly supplied by the Spondon and Etwall Gas Companies, whose undertakings were acquired in 1906. It was, however, only during the last seven months of the year that they were supplying the Midland Railway Company; so that, though the increase on the year was upwards of 26 per cent., it was during the second half that the principal advance took place. During this period the output of gas was 40 per cent. more than in the corresponding half of 1906; and they might fairly hope that this larger ratio of demand would be permanently maintained. Even if they deducted from this increase the total quantity of gas sold to the Midland Railway Company and to the outside districts, there was a very substantial augmentation of what might be called the domestic supply of the town of Derby itself. The strain upon the plant and on those in charge of it had been very great, and fully justified the action of the Directors in their preparation to efficiently meet all demands. During the year the number of consumers had increased by more than 1300, and there were now 26,587 on the books. This was attributable to the absorption of the Spondon and Etwall districts, as well as to the establishment of new industries in and around Derby. The residual products had brought a considerably higher revenue, because in carbonizing a so much larger bulk of coal they had a correspondingly greater quantity of these products; and no small share of their success in recent years was due to the great improvements in the manufacture and adaptation of various residuals for the market. The sale of coke had yielded £14,683, against £10,373 in 1906—an advantage to the Company of £4310, due to a much larger quantity being produced and sold, and slightly higher prices obtained. Tar and sulphate of ammonia together had yielded £11,718; showing an advance of more than £2000, due entirely to the extra quantity sold—the prices having been slightly lower. The total receipts for the year amounted to £120,291. Deducting from this the £85,285 on the other side, there remained £35,005 to be carried to the profit and loss account. On one side of this account there was the balance from the revenue account added to the £14,574 brought forward and a small item of bank interest. Against these sums had to be set the £11,500 to which he had already referred. They had also to debit the amounts for dividends and interest paid in June and December last, and this left a net balance of £23,357 to be carried to the next account, subject to the payment of the dividend due Dec. 31. In conclusion, the Chairman thought the shareholders could hardly wish to see a more favourable statement of accounts.

The DEPUTY-CHAIRMAN (Mr. J. W. Newbold) seconded the motion; and it was carried unanimously.

The dividend recommended was then declared; and the retiring Directors and Auditors were re-elected.

A vote of thanks having been accorded to the Chairman and Directors, the Engineer, Secretary, staff, and employees,

The CHAIRMAN, in responding, said it was a great satisfaction to the Directors to feel they had the confidence of the stockholders. The Company had an excellent Secretary in Mr. Bullivant, and the other officers were highly capable.

Mr. FERGUSON BELL also returned thanks. He said it was gratifying to them to know that their services had met with some measure of success. Alluding to the increased output of gas, he said that during November and December last there were often increases of more than 50 per cent. compared with the corresponding months of 1906.

The Belper and Milford Gas Undertakings.

At the close of the proceedings above reported, an extraordinary meeting was held to consider the provisions of the Bill now before Parliament to obtain authority for the acquisition by the Company of the Belper and Milford Gas-Works.

The CHAIRMAN, in moving a resolution approving of the Bill, explained that its main object was to authorize the Company to purchase the works of the Belper Gas and Coke Company, and those at Milford, which were the property of Mr. G. Herbert Strutt, and to extend still further the Company's area of supply. The Belper Urban District Council desired the Derby Company to acquire these two undertakings, which supplied the Belper district; and Mr. Strutt had intimated his willingness to sell his works. Negotiations were consequently entered into, and agreements made which the Directors deemed to be quite equitable, and which they hoped would be for the advantage of the Company and the general benefit and interest of all parties concerned. The shareholders of the Belper Company were now receiving 10 per cent. dividend upon their shares, which were £10 each; and it had been agreed that they should have £20 worth of stock in the Derby Company, which had a standard rate of 5 per cent., in exchange for each of their £10 shares. Reasonable compensation was to be paid to the officers whose interests were prejudicially affected by the transfer. In the case of the Milford undertaking, a fixed sum had been agreed upon for the works, plant, and mains; and the stocks in hand were to be taken at a valuation, which he believed had already been made. The entire capital value of these two works would not exceed £23,000. The negotiations had been carried out in the most friendly manner; and it was hoped there would be no difficulty with the Bill.

The DEPUTY-CHAIRMAN, in seconding the motion, said without hesitation that since the undertakings of other local Companies had been acquired by the Derby Company the areas served by them were consuming proportionately a largely increased quantity of gas. He considered the Company were buying on very fair terms; and he believed that though their other purchases had been entirely satisfactory and remunerative, those for which they were now seeking powers would be decidedly the best.

The CHAIRMAN, in answer to a question, said the Bill sought the extension of the existing supply so as to include the urban district of Belper and certain surrounding villages. He added that there would be no attempt on the part of the Company to trespass one yard upon the area of supply already occupied by any other company.

The promotion of the Bill was then unanimously approved.

The Oswaldtwistle Urban District Council have decided to make application to the Local Government Board for sanction to borrow £15,000 for increasing the plant of the gas-works.

BROMLEY GAS CONSUMERS' COMPANY.

The Amalgamation of the Bromley and Crays Gas Companies. Reduction in the Price of Gas.

The Ordinary Meeting was held last Tuesday, at the Bell Hotel, Bromley, Kent—Mr. ALEXANDER DICKSON in the chair.

The SECRETARY (Mr. Henry W. Amos) read the notice convening the meeting; and the report of the Directors and the accounts were taken as read.

The CHAIRMAN, in moving the adoption of the report and the accounts, said the proprietors would see that the increase in the make of gas for last half year was 1½ million cubic feet, and this, with the increase in the previous half year, gave about 4 millions increase for the year. Had the second quarter of last half year been as favourable as the first, the increase would have been considerably larger, for at the close of the first quarter they had over 3 millions in excess of the corresponding quarter of the previous year; and, indeed, throughout October the increase continued to advance, but the milder and brighter weather of December set them back by 2½ millions, leaving the increase at 1½ millions on the half year. For the information of those of the proprietors who carefully scrutinized the statistics submitted, he might say that the slight increase in the amount of the unaccounted-for gas was partly, if not wholly, due to the acceleration of the date of the reading of some of the meter indices last quarter, whereby the gas consumed after the readings were taken, although forming part of the make for the half year, passed over for registration in the current quarter, and went into the accounts for this half year. This was more or less always so at this time of the year, and that was why the amount of the unaccounted-for gas appeared larger in proportion to that shown in the accounts to Midsummer. At the last meeting, the Directors advised the proprietors of the serious advance in the price of coal. But even that advance was afterwards enhanced; and Durham coals were before the close of the year quoted at from 14s. to 15s. per ton f.o.b., instead of the 7s. to 7s. 6d. of a few years ago. They read now that, under an award of the Arbitration Board between the coal owners and the miners, the advance of wages apportionable on the average top prices had now been made, and that the standard in that way was now 55 per cent. above the standard arranged in 1879. The selling price of coal, however, was apparently giving way, owing doubtless to the slackening of business in the metal trades, and to the diminution also of the exported quantity of coal. Therefore, lower prices might be anticipated; and it was to be hoped they would soon prevail. One had heard of lower offers having already been made. The coals they had been carbonizing this last half year were, as the proprietors might remember, from fresh collieries; but they had certainly given good results, enabling as large a volume of gas to be made with fewer retorts; the make per ton, it would be seen from the statistics, being some 20 per cent. higher than from some of the coals previously used. "It is not all of life to live," someone had said; nor is it all of gas making to break the record make per ton. There were, of course, the residual factors to be considered and their values. While the reports of the local gas examiners testified that the illuminating power and purity of the gas had been, and was continuing to be, of high quality, considerably less coke had been made. But this reduction was only consistent with obtaining a larger quantity of gas per ton of coal. Nevertheless, the coke being more valuable, they had made a better balance from it. And that was the one redeeming feature in the residuals market of last year. The new mechanical coke-conveyor and the overhead steam-crane for haulage work in the yard, had made a continuous run from the start; the excellent results affording substantial economies in the saving of labour by some 20 per cent. in the carbonizing department, and even more in the coke section. So that this plant would speedily recoup its cost. Having some special business to transact, he deferred, he thought, to the general convenience by abstaining from making the customary comparative statement upon the details of income and expenditure, the net result of which showed that, after payment of the dividends as heretofore at the rate of 6 per cent. per annum on the "A" stock and 4½ per cent. per annum on the "B" stock, there remained a balance to be carried forward to the next account of £3344, or just about £900 less than the balance carried over from the corresponding half year two years ago. It was, of course, with disappointment and regret that, having succeeded in lowering the price of gas in their district to 2s. 11d. per 1000 cubic feet, and continuing it at that rate for some time, the Board found themselves constrained to raise it in the face of the abnormal prices ranging in the coal market, which culminated at the latter part of last year; and in view of the impending change, and the advantage reaped from the use of the new mechanical plant, the Directors had decided to commence the reduction as early as possible—viz., by 1d. from the close of the current quarter, hoping to make further reductions as soon as the position was a little more surely developed. He would now pass on to the paragraph in the report which referred to the agreement for the amalgamation of the Crays Company with their own Company. Notwithstanding the deliberations of the proprietors at a special meeting on Jan. 30, it was requisite to record in the present report the completion of the agreement effected with the Crays Company for amalgamation, and its subsequent confirmation in special meetings by the proprietors of both Companies. It might be expedient to restate the main points resulting in the present scheme of amalgamation. On the incorporation of the two neighbouring Companies in the same session of Parliament 43 years ago, the limits of supply in both Bills were framed to include an extensive overlapping area; and this territory in common was authorized in the case of both Companies. Differences arose not many years ago as to the powers of each Company in that overlapping area; and they became involved in costly legislation, which dealt with the matter only as far as it was then carried. In cases of similar difficulty, and indeed of many other disputes, it not infrequently happened that their solution became possible in some friendly mutual arrangement, as was indeed suggested and commended to both Companies by the learned Judge from the Bench. In this agreement to amalgamate the interests of both Companies on fair and equitable terms, and so to sink all points of difference, and at the same time by consolidation to further the interests of the consumers in both areas, to whom would fall the greater share of the advantages and economies so derivable, were embodied the results of their mutual efforts and negotiations to attain that very desirable, and, he thought the proprietors would agree, most sensible object. Briefly the arrangement was this: The Crays Company's undertaking was to be amalgamated with the Bromley Gas Consumers' Company; and the Crays Company would be dissolved. The Crays Company's stock (£80,000) with a 5 per cent. standard was practically to become a third class of stock in the Bromley Company—that was, the existing "A" and "B" stocks retained their position; and the Crays stock would become a new "C" stock of the Bromley Company. With regard to dividends, the Crays shareholders were now taking their 5 per cent.; and under the arrangement with this Company, they were to share, according to the sliding-scale, in the profits in excess of the standard dividend, but always so that the "C" stock would take a dividend of ¼ per cent. less than the "A" stock of the Bromley Company. The "B" stock would continue its existing rights with regard to dividend; and if at any time—a far-off event he quite hoped, but yet one which must be provided for under any formal arrangement of this kind—the profits of the undertaking should be insufficient to pay more than the standard dividend on all three classes, then the stocks took their standard dividends in accordance with the sliding scale. If insufficient to maintain these rates, and only to allow of lower rates being paid, then the "A" and "C" stocks ranked for the same division below the standard dividend, and the "B" stock would take its proportional dividend as under the sections at the present time operating. Under schemes of gas amalgamations, it was usually required to level the charges if they differed over the united areas; and when the prices as here were one above the other, the precedents had provided a term of years over which the prices should be gradually approximated before being made uniform throughout the district. Hence the Companies had provided that, for the first five years, such alterations in price should be made as might be necessary or possible, but always so that the price in the Crays district must not be nearer the Bromley price than 4d., nor more above it at any time than 8d. In the second five years' period, it was not to be nearer than 3d., and not more than 6d. above it; and at the end of the ten years' period, the price was to be uniform throughout the district. The differences in price, he might mention *en passant*, under normal conditions the last ten years, between the two Companies districts had varied from about 10d. to about 7d. or 8d. per 1000 cubic feet. There was consequently a very substantial and secure advantage for the public and consumers in the Crays district in the arrangements which had been embodied in the Bill; and for them, in combination with the public and consumers in the Bromley district, sharing in proportion to the extent of their use of gas, would accrue the resultant economies and advantages of administration from the amalgamation of these undertakings in the reductions of price which would thereby be rendered possible, and which, he might say, were not attainable to the same degree in the absence of that combination, either to the public or to the consumers in the one or the other district. Regarding the present position of the Bill, it had been under the consideration of the several local and rural authorities throughout the districts; and the Directors had been in correspondence and communication with them. He had the privilege of a conference with a Committee of the Bromley Corporation on the points raised in a letter from them; and, after discussing these points with them, and considering their views, he was pleased to say that the Board had been able to entirely meet their several objections or views on the Bill. They had withdrawn the proviso from clause 31 [the ½-candle margin in illuminating power], which was not intended, as had been inferred in some places, to enable the Directors to reduce or deteriorate the quality of gas, but was inserted in the Bill because a like clause was inserted in the session before last in the Act of the South Suburban Company. Being fair in an adjacent district, the clause would not have been unfair if applied to the Bromley Company. However, the Board were anxious to meet the views of the authorities, and anxious because they thought it desirable to minimize as far as possible the expense of promoting the Bill, and to avoid the additional expense of having to contest matters in the parliamentary committee rooms. There was one other clause which the Bromley Corporation desired them to alter, and as they wished them to follow the language of the model clause for like purposes, they had decided to comply with their request. So the matters between the Company and the Corporation had, happily, been removed; and he was sure that would be a source of satisfaction not only to the proprietors, but throughout the district. He wished he could say they had been fortunate to a similar extent with all the authorities. But at this moment, he scarcely knew what to put forward as to the position of some of them. With the Chislehurst Council, they had had correspondence; and with their representatives in common with the representatives of the Foots Cray Council and the Bromley Rural District Council, they had had a conference. The Directors offered to meet their views on two clauses in precisely the same way as they had met the views of the two principal authorities. But the gentlemen present from those bodies asked for alterations to the clause as to the differential price which was to apply throughout the district for ten years, and which alterations would have involved a very great unfairness to the interests of all in the Bromley district. Their proposal that uniform prices should be compulsorily applicable throughout the whole district from the time of the passing of the Bill, or failing that at the end of two years, would be seen at once to involve a condition of things which would have been very disastrous for the Bromley consumers and the shareholders. It was, therefore, a proposal that could not possibly be conceded. They had not since heard from these authorities; but he did hope that, on further consideration of the substantial advantages which were secured to the consumers in the Crays Company's district, they would see that the Directors had really endeavoured to meet the case in the fullest and fairest way, and that the interests of the district did not require any opposition to the Bill.

The DEPUTY-CHAIRMAN (Mr. Bertram H. Latter) seconded the motion; and after further explanations on details of the agreement that has been arrived at with the Crays Company, the motion was unanimously adopted.

Moved by the CHAIRMAN, seconded by Mr. S. J. WILDE, dividends

at the rate of 6 per cent. per annum on the "A" stock and 4½ per cent. on the "B" stock, both less income-tax, were declared.

The retiring Directors (Messrs. Dickson, Latter and Hughes, and Auditor (Mr. E. E. Price) were unanimously re-elected.

The Promotion of the Bill Endorsed—A Twopenny Reduction.

A Special General Meeting was then held to consider the Bill providing for the amalgamation of the Crays Company with the Bromley Company.

Mr. C. F. T. BLYTH (the Company's Solicitor) read the heads of the Bill, and explained the most interesting of the clauses. These have already been summarized in our review of the Bills of the session.

The resolution consenting to the promotion of the Bill was moved by the CHAIRMAN, and seconded by the DEPUTY CHAIRMAN, and was unanimously passed.

The CHAIRMAN made an important announcement at this stage. He said that, in his conference with the representatives of the Bromley Corporation and with those of the Beckenham District Council, he pleaded that the Company should not be subjected to unnecessary opposition, and in endeavouring to impress the great desirability of the Company getting the Bill through with the minimum of cost, he ventured to say to those members of the Council who were present that if the Company were relieved of the burden and expense of opposition he was sure that his colleagues would like to give the benefit of the saving at once to the consumers by way of a reduction in the price of gas, and if they could attain to the desired consummation, they would be glad to make the reduction at Lady-Day 2d. per 1000 cubic feet, instead of 1d. The Board had considered that day the position which was before them, and in view of the favourable consideration which the Bromley and Beckenham authorities had given to the Bill, and the way in which the Company's proposals had been met by them, the Directors had decided, whether the other authorities did present any opposition or not, to give a reduction of 2d. in the price of gas at the close of the current quarter throughout the Bromley district.

Hearty votes of thanks were passed to the Chairman and Directors, and to the Engineer (Mr. W. Woodward) and the Secretary (Mr. H. W. Amos).

The protracted proceedings then terminated.

SHEFFIELD UNITED GASLIGHT COMPANY.

Half-Yearly Report and Accounts.

In the report to be presented by the Directors at the half-yearly general meeting of the Sheffield Gas Company on the 9th prox., they express their pleasure at being able again to report a large increase in the Company's business, the sale of gas during the half year ending Dec. 31 last having been 1,692,687,000 cubic feet; the additional quantity sold being 128,568,000 cubic feet, or 8·13 per cent. Coal cost the Company £28,807 more than in the corresponding half of 1906, due to the high price paid and the extra quantity carbonized. As a set-off, however, there were larger receipts for coke, &c., and the increase in the sale of gas already referred to. To pay the usual dividend, it will be necessary to take from the balance carried forward from previous half years the sum of £2683; but having regard to the fact that the price of gas has been 1d. per 1000 cubic feet lower than during the corresponding period of 1906, the Directors think this must be regarded as satisfactory. The Company's charges for gas during the half year were 1s. 4d., 1s. 2d., and 1s. per 1000 cubic feet—the last-named price being charged for gas used for motive power. The average price for the half year was 1s. 3·04d. per 1000 feet. The accounts accompanying the report show that the sale of gas produced £115,037, and of residuals £72,282; the total revenue being £189,152. The expenditure on manufacture of gas amounted to £119,159 (coal costing £80,184 and repairs and maintenance of works and plant £17,801); on distribution, to £13,797; and on management, to £5898; rents, rates, and taxes came to £9257; and the total expenses were £149,468. The balance of £39,684 is carried to the net revenue account.

SOUTH SUBURBAN GAS COMPANY.

Half-Yearly Report and Accounts.

The following is the report of the Directors for the six months ending the 31st of December, which, with the accounts, will be presented at the half-yearly general meeting on Friday.

The full effect of the high price of coal has been felt in the half year. This has been met by the increased price of gas and higher receipts for coke. In the corresponding half year, however, there was a deficiency of £1884, converted into a surplus on the present occasion of about an equal amount. Of this surplus, £504 is due to the reduction of 3s. 4d. per cent. in the dividend which is payable under the sliding-scale, consequent on the advance in the price of gas. The Directors recommend that the full dividend allowed by Parliament—viz., at the rate of £5 6s. 8d. per annum—be paid.

The gas sold is 1·15 per cent. in excess of that in the corresponding period of 1906. There was a very satisfactory increase in the first three months, which was nearly all lost, owing to the mildness of the weather, in the last quarter.

There is ground for hope that the price of coal is on the down-grade; but there is danger ahead in the shape of the expected Bill to limit work in coal mines to eight hours from bank to bank—that is, to less than six-and-a-half hours' working time. Should the Bill pass, the output of coal will be very seriously curtailed—at all events at first; and this there is every reason to believe will put up the price of coal as a consequence of the shortage in the first place, and also because the cost of getting coal will be permanently increased. All coal users should bring their influence to bear on Members of Parliament to prevent the adoption of this measure.

The new scheme for the election of Employee-Directors, referred to in the last report, has been brought into operation, and has resulted in the re-election of Mr. Wyllie, carpenter, Mr. Waller, bricklayer, was also re-elected last year. This is evidence that the workmen are satisfied with their choice; and the Directors have pleasure in again testifying that the whole system of co-partnership, by which practically all the employees have become shareholders, and of which partnership in responsibility is the most important part, continues to work most satisfactorily in all particulars.

A resolution will be submitted to increase the salary of the Secretary. He was appointed in 1893, and his last advance was made in 1902. The Company is well served by its two chief officers, by the staff, and the workmen; and the Directors are pleased publicly to express their satisfaction with the manner in which the employees of all grades perform their duties.

Two Directors (Mr. C. Lea Wilson and Sir J. Fortescue Flannery, Bart.) and one Auditor (Mr. Samuel Wood, F.C.A.) retire from office. They are all eligible, and offer themselves for re-election.

The accounts accompanying the report show that £1455 was spent for capital purposes in the second half of the year; £1218 being for new and additional meters and stoves. The total capital expenditure on the 31st of December amounted to £806,636, or £24,727 less than the receipts, including the premium capital. The net revenue from the sale of gas was £85,450; the rental of meters and stoves produced £6140; the sale of residuals, £32,699; and a small item of rents brought up the total receipts to £124,333. The following were the principal items of expenditure: Manufacture of gas (including £53,740 for coals and £15,649 for maintenance of works and plant), £77,397; distribution, £11,745; management, £4994—rents, rates, and taxes (£4400) and miscellaneous items bringing up the total to £101,508. Among these items is a sum of £1500 paid on account to employees under the co-partnership scheme. The balance carried to the net revenue account is £22,824; and the amount applicable for dividend is £21,584. The statements relating to the working show that 66,107 tons of coal were carbonized in the half year. The quantity of gas made was 734,502,000 cubic feet, of which 667,460,000 cubic feet were sold and 675,134,000 cubic feet accounted for. The residuals were: Coke, 793,284 cwt., of which 178,368 cwt. (estimated) was used in manufacture; breeze, 13,029 yards (10,097 yards used); tar, 694,695 gallons; ammoniacal liquor, 16,854 butts—the make of sulphate of ammonia being 610 tons.

CROYDON GAS COMPANY.

Half-Yearly Report and Accounts.

In the report which the Directors will present at the half-yearly general meeting of the Croydon Gas Company next Friday, they state that the sales of gas in the six months ending the 31st of December last exceeded those of the corresponding period of 1906 by 4·55 per cent. The number of consumers increased by 1251, that of stoves on hire by 1142, and 246 stoves were sold to consumers. Having regard to the reduction in the charge for gas in the Carshalton area, to the high price of coal, and to the provision which has to be made for charges on revenue consequent on alterations being made at the works, the Directors were compelled to make an increase of 2d. per 1000 cubic feet in the price of gas as from Christmas last. They hope, however, that the additional charge will be necessary for only a short period. The sale of coke direct from the Caterham depôt has been discontinued. The new section of manufacturing plant at Waddon was brought into use on the 12th of September, and is now dealing, with satisfactory results, with all the coal gas produced. Progress is being made with the erection of a new and larger sulphate-house in a more convenient position than the existing one.

The accounts accompanying the report show that the total revenue was £115,112, of which £80,938 was derived from the sale of gas, £7955 from rental of meters and stoves, and £26,127 from the disposal of residuals. A sum of £60,770 was expended on manufacture and £16,268 on distribution; rents, rates, and taxes came to £4433; management cost £3983; and the total expenses were £90,006. For the corresponding period of 1906, the receipts were £107,666, and the expenses £84,321. The balance carried to the profit and loss account is £25,106, compared with £23,345; and the amount available for distribution is £26,284, against £24,838. The Directors recommend the payment of dividends at the rates of 14½, 11½, 10, and 5 per cent. per annum, all less income-tax, on the various classes of stock. This will absorb £21,736, and leave a balance of £4547.

The statements relating to the working show that, under the supervision of Mr. J. W. Helps, the Engineer and General Manager, 40,321 tons of coal and 482,707 gallons of oil were used during the half year in the manufacture of 636,431,000 feet of gas, of which 594,805,900 feet were sold and 602,146,000 feet accounted for. The estimated quantities of residuals produced were: Coke, 24,193 tons; breeze, 5831 tons; tar, 473,137 gallons; ammoniacal liquor, 1,006,275 gallons—the make of sulphate being 321 tons.

PORTSEA ISLAND GAS COMPANY.

The Half-Yearly General Meeting of this Company was held on Saturday—Alderman Sir John Baker, J.P., M.P., in the chair. The report of the Directors, which was taken as read, showed that, exclusive of the amount standing to the credit of the extraordinary renewals account (£7738), the profit and loss account showed an available balance of £44,002, which enabled the Directors to recommend the declaration of dividends for the past half year at the rate of 13 per cent. on the "A" and "B" shares, 12 per cent. on the "C" shares, 10 per cent. on the "D" and "E" shares, and 5 per cent. on the Company's stock, less income-tax—leaving a balance of £26,070 to be carried forward. The Directors stated that the demand for gas continued satis-

factory; the quantity sold and the number of consumers having both increased. The accounts showed that the revenue for the half year had amounted to £114,157, an increase of £9000 upon the corresponding period of last year. The expenditure had also increased, which allowed only £18,948 to be carried to the profit and loss account, against £19,163 in the corresponding period of 1906. The bulk of coal and cannel carbonized was 52,968 tons; and 521,592 gallons of oil were used. The gas sent out amounted to 695,595,000 cubic feet, against 673,204,000 cubic feet before. In the course of a short address in moving the adoption of the report, the Chairman congratulated the shareholders on the continued prosperity of the undertaking. There had, he said, been a normal increase of 2000 consumers; and having passed the coal crisis comparatively unscathed, there was now every prospect of favourably placing their contracts in the future. The resolution was seconded by the Deputy-Chairman (Mr. R. Edgcombe Hellyer). A shareholder said he ventured to think the report did not bear the rosy appearance the Chairman had indicated; for though the revenue side of the account showed an increase of £9000, the Company were not a penny better off, inasmuch as the expenditure had also been increased by £9000. The speaker also complained of the high charge of 3s. 4d. per 1000 cubic feet to which the poorer consumers who used penny-in-the-slot meters were subject, and expressed surprise that the Chairman had not commented upon the new clause which the Company were seeking to introduce into the Electric Lighting Provisional Order now being applied for by the Portsmouth Corporation, which he said would apparently only have the object of checkmating the Corporation in the cutting-down of prices, and would probably entail a heavy cost upon the Gas Company. Another shareholder, however, said the Portsmouth charges compared favourably with those in other parts of England. The Chairman, in reply, assured the shareholders that the Board had every desire to protect the Company's revenue, and that the proposal to deal with the Provisional Order named would not entail any charge. The motion was then carried.

STRANGE OCCURRENCE AT THE BEDFORD GAS-WORKS.

There appeared in some of the London papers yesterday a sensational account of a rather strange occurrence at the works of the Bedford Gas Company, by which, as the outcome of some labour trouble, a quantity of gas was caused to escape, and the lives of the inhabitants were placed in danger. We learn that the following are the facts: Owing to the death quite recently of one of the foreman stokers, a man selected by the Engineer (Mr. T. Dann) was objected to by some of the stokers, on the ground that one of their own number should have received the appointment. The Engineer, quite naturally, objecting to be dictated to by the men, maintained his position, and placed the man in charge ten days since. He performed his duties efficiently; but the members of one of the shifts (eight-hour) were evidently determined to resent the appointment, and the trouble culminated on Friday night last in one of the trunk main valves being maliciously closed at about midnight. The man in charge noticed the lights lowering, and at once sent for the works foreman, who opened the valve, and immediately called up Mr. Dann; but nothing remained to be done but place the matter in the hands of the police. The disaffected stokers have been suspended. Fortunately no fatal results occurred; and the whole town was not plunged into darkness, as stated by several newspapers.

BURTON-UPON-TRENT GAS SUPPLY.

The Management of the Gas-Works.

At the Meeting of the Burton-upon-Trent Town Council last Wednesday, Alderman T. E. Lowe, in moving the adoption of the report of the Gas and Electricity Committee, said the Council, and no doubt the general public, would notice with a good deal of satisfaction that there had been a very considerable increase in the consumption of gas, amounting last month to upwards of 2 million cubic feet as compared with the corresponding period last year. It must be said, however, that this was not due so much to any extra demand as a result of increased trade, but owing to the meteorological conditions at that particular time. During the month of January this year, the temperature was 2° or 3° lower, on the average, than was the case in January, 1907; and, in addition, they had experienced more fogs. This was borne out by the fact that since the returns had been issued the weather had been very much milder; and so the sales had dropped nearly a million cubic feet. With reference to the management of the gas-works, it would be remembered that a year ago they approved the appointment of Mr. J. Ferguson Bell, of Derby, as Manager, and Mr. Sidney Ramsden as Assistant Manager. He might say unhesitatingly that their confidence had not been misplaced; and he had no doubt the results would show that the appointments then made had turned out quite satisfactorily. Mr. Bell had been in constant touch with them during the year, and had paid several visits to the gas-works. The Committee therefore recommended that he be re-appointed as Consulting Engineer. During the past few years, a considerable amount had been spent in various directions in connection with the gas undertaking; and they were hoping to reconstruct certain portions of the works on modern lines. In making these improvements, they would require specifications upon which tenders could be obtained; and Mr. Bell had undertaken this work on the same terms as last year. He (Alderman Lowe) had kept in close touch with the gas-works, and had always found Mr. Ramsden thoroughly attentive to his work, and possessed of the desire to improve himself, and carry out his duties in the interests of the Corporation in every way. He therefore recommended the re-appointment of Mr. Ramsden as Assistant Manager; and he also asked the Council to sanction the appointment of Mr. C. P. Mudie as Chief Assistant to Mr. Ramsden, at a salary of £120 per annum. Mr. Tarver seconded the motion; and the report and recommendations were adopted without discussion.

LIGHTING AND VENTILATION OF SCHOOLS.

Relative Cost and Advantages of Gas and Electricity.

In the "JOURNAL" for the 31st of December last, we gave some extracts from a report presented to the London County Council by the Education Committee on the subject of the lighting of the Council schools by gas and electricity. In the course of the report, the Committee said they had for some time had under consideration the two systems named. Gas lighting by means of plain burners had been practically superseded by the introduction of incandescent mantles, which had been found preferable from the points of view of economy and efficiency. The principal endeavour of the Committee had been to obtain an accurate comparison of the merits of incandescent gas and electric lighting. As regards hygiene and general efficiency, they were of opinion that electricity possessed many advantages over gas; but, from exhaustive comparative tables which they had had before them, it appeared that the cost of maintenance was about 50 per cent. higher. They were informed, however, that the present type of incandescent electric lamp was likely to be superseded in the near future by metallic filament lamps, which would, it was anticipated, effect a very great saving in the consumption of current, and might even "render electricity a cheaper illuminant than gas." As the questions referred to in the foregoing remarks from the report were of great interest and importance, not merely to the Gaslight and Coke Company, as the suppliers of gas to a great many of the Council's schools, and to the Council as responsible for the efficient, economical, and healthful lighting of schools, but also to the public generally, who are naturally greatly influenced by the opinions formed by so independent an authority as the Council, the Company's General Manager (Mr. D. Milne Watson) was directed to ask the leave of the Council to submit for their consideration some observations upon the questions raised. This he did in a long letter, from which we make the following extracts.

Dealing first with the relative cost of gas and electric light, Mr. Watson said: "In the report of the Education Committee submitting the report of the Medical Officer (Education) for the year ending March 31, 1907 (p. 52), the statement is made that the cost of electric lighting, 'based on estimates derived from a dozen schools during 1905, amounted to 1·7 that of gas.' It is submitted that the comparisons made could not have been between schools lighted with an equal effective total candle power for an equal number of hours, as this Company have proved conclusively, not only by careful experiment, but by the practical experience of numbers of their consumers who have substituted incandescent gas-burners for electric lamps, that, light for light, the cost for electricity is, on the most conservative estimate, five times that of gas. This is with gas at 2s. 10d. per 1000 cubic feet and electric current at an average of 4d. per unit. To mention only one of the most recent instances of this. During this year the Company fitted gas-burners of over 10,000-candle power in place of electric lamps of under 4000-candle power in the premises of the Hackney Working Men's Club. The cost of gas and mantle renewals during the September quarter was only one-half the cost of electric current alone (apart from lamp renewals) during the corresponding period of last year—*i.e.*, more than two-and-a-half times the light for one-half the cost. It may be added that the metallic filament electric lamps, to which the Committee's report refers, are certainly more economical in current used per candle power obtained than the carbon filament lamp; but as they cannot be used in units of less than 40 to 50 candle power (two lamps having to be run in series on all but low voltage circuits), consumers will not be able to effect an economy in consumption proportionate to the relative efficiencies of the two lamps. These lamps have other drawbacks, due to the fragility of the filaments used. Under the most favourable conditions, however, the cost of lighting by metallic filament lamps is, light for light, three to four times that of lighting by incandescent gas-burners." Mr. Watson added that the Company's officers were at any time at the service of the Council if it was desired to go further into the question of the relative cost of gas and electric light.

Taking next the relative hygienic advantages of the two systems, Mr. Watson said: "The question of the relative hygienic advantages of gas and electric light is of still greater public importance than that of their relative costs; and the Company, believing that serious misapprehension exists on this point, are anxious that the question should receive the fullest investigation and consideration on the part of the Council before they finally form a judgment thereon. They therefore submit information showing that there is, at any rate, ground for further scientific inquiry respecting the belief that gas is less healthy to use than electric light. This belief is very commonly held, but is, it is submitted, based mainly upon *a priori* reasoning, though partly upon the experience of users of the now out-of-date flat-flame gas-burner in badly ventilated and otherwise unsanitary rooms. It is an important fact that should not be, but often is, overlooked, that a very great difference in the effect of gas lighting upon the atmosphere of the room in which it is used has been brought about by the introduction of the incandescent burner, in which the gas is thoroughly consumed, and from which twice the illuminating power can be obtained with one-fourth of the quantity of gas, as compared with flat-flame burners, in which gas was often imperfectly consumed. The Company base their claim that gas lighting is not less hygienic than electric lighting upon two principal sources of evidence, though there are other evidences that might be quoted in its support—namely, the results of investigations carried out, altogether independently, by two well-known scientific investigators, Professor Vivian B. Lewes, F.I.C., F.C.S., and Dr. Samuel Rideal. The former conducted his investigations entirely on his own account; the latter at the request of the Metropolitan Gas Companies."

Mr. Watson then gave a long extract from the lecture delivered by Professor Lewes on the occasion of the meeting of the Institution of Gas Engineers in Dublin last June, as published in the "JOURNAL" at the time—the portions selected being those in which he showed how air is contaminated, emphasized the value of diffusion, and demonstrated the importance of gas as an aid to ventilation. Passing on to Dr. Rideal's experiments and physiological observations, which he

said fully confirmed the conclusions arrived at by Professor Lewes, Mr. Watson quoted the following results contained in Dr. Rideal's summary report, and said the detailed observations, as well as full particulars respecting the tests and the conditions under which they were carried out, were open to the inspection of any members or officers of the Council who might wish or be deputed to investigate the question further.

Heating Effects.—The conclusion is that there is no marked difference in the heating effects under either illuminant. The temperature of the air of a room in which gas was allowed to remain burning for a considerable time was not raised to any greater extent than in a similar (uninhabited) room in which electric light was maintained for the same period.

Ventilation Effects.—The ventilation was determined before and after the evening's work, and it was found that the ascending currents of air from the gas-burners had a marked effect in stimulating the ventilation of the room.

Sterilization of Germs.—The moisture condensed on a cool surface in a room in which gas had been burning for about three hours was entirely sterile, while such sterility was not noted under similar conditions in a room lighted by electricity. This is a most important fact, and it follows that the burning of gas must also produce sterilization of the air itself. Increase of ventilation causes a diminution in the bacterial contamination in most cases by influx of purer air; so that the mode of illumination which produces most efficient ventilation should, *ipso facto*, possess more hygienic characters. On all points, gas possesses a greater sterilizing effect than electric light on the air of the room.

Production of Carbonic Acid.—This gas is not an impurity, but a normal and necessary constituent of the air, and is now recognized as harmless in much larger quantities than could result from any reasonable consumption of gas. In these experiments 50 parts of CO_2 per 10,000 were on some occasions (by design) exceeded; but no physiological effects were noted. This quantity of CO_2 was an exceptional one, and could never be reached in an ordinary ventilated room.

Medical Observations.—The average final frequency (of the pulse) was practically constant and nearly the same under both lights. The average frequency of respiration decreased under both systems of lighting to very similar amounts. A progressive decline was noted in body temperature, and the average falls per hour under both systems were very close indeed; the difference in the method of illumination being apparently quite powerless to affect them.

Interesting results were obtained as regards the action of the two kinds of light on the eyes of the subjects. The sensitiveness of the eye to the light was found to be appreciably diminished on being exposed to electric light—an effect not noticed in the case of gas. Three hours under electric light affected the motor muscles of the eyeball more than an equal exposure to gas. In short, all the experiments made on the eye were more favourable to gas—a conclusion which strongly suggests the necessity for further research under conditions more suitable to opthalmic work. [This most important conclusion is confirmed by the observations of other independent and scientific authorities.]

The results of these experiments show fairly conclusively that under ordinary conditions either light can be used without the least prejudicial influence on health.

It remained to try the effect of a leakage of gas into a room. Coal gas contains certain poisonous constituents, the chief being carbon monoxide, and has in certain cases been inhaled with fatal results. With the view to studying the effect of coal gas when breathed in large quantities, three subjects were placed in a room, the door and windows of which were closed and the fireplace blocked with a tight-fitting screen. During the proceeding 18 hours' gas had been turned into the room at the rate of 0·6 cubic foot per hour, or (say) one-half of the consumption of one of the burners. When the subjects entered, this rate was afterwards increased to 8·8 cubic feet per hour, equivalent to six burners full on; the air being well mixed from time to time. The three men remained in this gas-laden atmosphere for four hours and twenty minutes, and beyond an increased rate of respiration and a few minor symptoms, no very marked physiological effects were observed.

It will be noted that this was no ordinary leakage, but a steady flow at the rate of three times the ordinary consumption—such, in fact, as could only occur through breakage or other accident. When it is borne in mind that an exceedingly small leakage of gas can be detected at once by its characteristic smell, it will be seen how difficult it is for a condition to be set up capable of affecting the health. This is borne out by the extreme rarity of cases of gas poisoning among the many millions of gas users in this country. It would be as unreasonable to condemn gas lighting on the score of such occurrences as to treat a fatal fire from defective wiring as an ordinary incident of electric lighting. The medical conclusions are in accord with those arrived at from the chemical and physical data, and prove conclusively that the choice between the two systems of lighting does not depend upon hygienic considerations.

The letter concluded with an expression by Mr. Watson of the hope that his long communication would be deemed to be justified by the importance of the questions at issue, and that the Council might consider the case put before them of sufficient strength to warrant them in at least suspending judgment upon these questions, and making them the subject of further consideration. He said that if the Company could afford the Council any assistance in further scientific investigation of the important points at issue, they would be happy to do so.

The seventh annual dinner of the Enfield Rifle Club, which took place on the 5th inst., under the presidency of General Sir J. French, K.C.B., calls for notice in our columns from the fact that Mr. C. W. Offord, the Secretary and General Manager of the Enfield Gas Company, was one of the prime movers in founding the Club, and that Colonel Sir Alfred Somerset, its President, is Chairman of the Company. The toast of "Success to the Rifle Club Movement in General and the Enfield Club in Particular" was responded to by Mr. Offord, who testified to the deep interest the President had always taken in the Club.

THE FATAL EXPLOSION AT A GUN SHOP.

Cause of Accident Not Proved.

On New Year's Day, an explosion and fire occurred on the premises of Messrs. F. Dyke and Co., gunmakers and cartridge fillers, of St. George's Avenue, Aldermanbury, E.C., by which a workman named John Coker lost his life; and after hearing a great deal of expert evidence at the inquest, the Jury on Monday of last week came to the conclusion that there was nothing to show how the explosion originated. Among the witnesses were Mr. F. J. Hood, Assistant Chief Inspector of the Gaslight and Coke Company, and Henry Spittle, a fitter in the employ of the Company. Mr. Hood said there was nothing to indicate that the outbreak of fire was the result of an explosion of gas. The books of the Company contained no record of an escape on the premises for a long time back. There was a water-seal pendant on the ground floor. In his evidence, Spittle stated that he found the meter was deranged, probably as the result of its having fallen to the ground. He could not tell whether anyone had meddled with it.

In his summing up, the Coroner (Dr. F. J. Waldo) pointed out that on the ground floor was a three-branch water-slide chandelier; and the floor communicated by a door with the basement, where a large number of cartridges were stored. Artificial light was obtained in the basement by a twin flexible electric lamp. Powder was stored in a safe, close to and above which was the gas-meter, from which a composition pipe led to the office above. There were two explosions, with an interval of two or three minutes between each. It might be accepted that deceased met his death as the result of an explosion of cartridges. The powder in the safe was found to be intact. To his mind there was nothing to show where the first explosion took place, or what was its nature. Various theories had been suggested; and that of a gas explosion had been fully discussed by several witnesses. There was the fact of there being the water-slide chandelier in the shop, two out of the three burners of which were alight at the time; but, on the other hand, no smell of gas had been noticed. Further, the manager, who was in the basement at the time, had neither hair nor clothes singed—a condition which was hardly conceivable if he had come out of a gas explosion. There was no evidence pointing to the probability of the electric supply being involved, though the installation was clearly defective. The wires were cased in wood, instead of in a properly constructed and fastened metal tube; and, incredible as it might seem, the meter and the fuse to the supply were in the next house, cut off by a brick wall, and absolutely out of the control of Messrs. Dyke and Co. The result was that live wires were in the premises at all times, night and day, whether anyone was in the place or not. The worst feature, however, to his mind, was the chandelier; and he thought the Jury would have no difficulty in condemning the use of gas as an illuminant under such conditions. The gas-meter was placed near the safe containing the powder—clearly an unwise step - and was fitted with a composition pipe, which was actually crossed by the electric light wires. These arrangements stood self-condemned. He thought the Jury would have no difficuly in finding that there was no evidence to show how the explosion was caused.

THE FATAL EXPLOSION AT WOMBWELL GAS-WORKS.

Conclusion of the Inquest.

On Dec. 11 an explosion took place in the old exhauster-house at the Wombwell Gas-Works, by which two men unfortunately lost their lives. The facts of the case, as recorded in the "JOURNAL" at the time, were that three men were in the house fixing the flap of a bye-pass valve, when the explosion occurred, burning all of them seriously; the building being also set on fire. Two of the men—James Lisle, the foreman, and Harold Schofield, a retort-setter—subsequently succumbed to their injuries, and the third—Arthur Burrows, a stoker—was so ill that the inquest had to be adjourned until last Tuesday for his attendance. When the proceedings were resumed before the Coroner at Barnsley, those present included Mr. S. R. Bennett, Inspector of Factories, and Mr. Percy Walker, Clerk to the Wombwell Urban District Council, to whom the works belong.

The first witness was Arthur Burrows, who gave an account of the explosion, but said that he was unable to explain the cause of it. The first thing the men did in the exhauster-house was to turn off the lights at the two brackets. He could say nothing as to the ignition-tube of the gas-engine. He did not examine it, and did not know if it was lit or not. He did not hear anything said about it. The top of the bye-pass was taken off, and Lisle put the flap in. Directly he did so, the explosion occurred. There was a report; and the place was filled with flame. Schofield and Lisle were working over the top of the bye-pass; while witness had gone to the door for a breath of fresh air, the place being full of gas. The force of the explosion blew him into the yard; and he was terribly burned about the arms, face, and neck. He had formed no opinion as to the cause of the explosion.

Mr. William A. Burton, the Gas Manager, stated that when the explosion occurred he was on his way to the works; and on hearing the explosion, he rushed to the place, and found the building a mass of flames. He instantly shut off the outlet-valve of the scrubber-washer. There were hydrants at the works; but there was no chance of saving the building. On making an examination of the scene of the accident, he found the bracket lights shut off; but all three taps of the ignition on the gas-engine were wide open. He could only infer that a light had been burning in the ignition, which was about 16 feet from where the men were working. When the men took the lid off the valve there would be an explosive mixture in the place within three minutes. If the ignition taps had been turned off, the explosion could not, in his opinion, have taken place. Lisle was a very careful man; and the light was very small. It was so small that it could not be seen unless a person went specially to examine it. Probably the ignition-tap was lighted, and it had been forgotten. Asked if it was proper for a pipe with gas running through it to be repaired, witness said it had to be done

when there was no separate bye-pass. He agreed that there might be some danger of the men getting "gassed" during the operation referred to. He was certainly of opinion that every exhauster should have a separate bye-pass.

John Wardle, a plumber employed in the works, said that after the explosion he saw Burrows with his waistcoat in flames, and knocked them out with his cap. He next noticed Schofield, who was badly burnt. He asked Schofield where Lisle was; and on being told he was in the burning building, he went there. Lisle was looking out with his head through a window, calling out to Burrows and Schofield to shut the valve off. Witness tried to break the window with his foot, but could not do so. He procured an iron rammer, and having broken the window, got Lisle through it. His clothes were all in flames; and witness put his coat round him to extinguish them. Later on he went into the building, when Mr. Burton showed him the taps belonging to the ignition-tube. They were open. Mr. Burton remarked to him that this was the only thing which could have caused the explosion. He had worked in the building, but had not known men gassed there before.

In summing up, the Coroner remarked that it was quite clear from the evidence that everything possible was done to alleviate the sufferings of the poor men. As to the cause of the disaster, it appeared to be certain that there would have been no explosion when they took the lid off if there had been no light in the place. The evidence seemed to show that Lisle had unfortunately forgotten a certain light which was in the place. His character was excellent; and they did not want to say anything to wound the feelings of his friends. He had been at the works for 25 years; and he must have been an extraordinary man to have held the situation so long. It seemed from the Manager's evidence that some improvements could be made in the plant which might have rendered the explosion less likely to have occurred; but he did not think Mr. Burton was in any sense responsible for this accident. It appeared that the works were not quite up to date; but no doubt the Factory Inspector would have some recommendations to make, which would be promptly attended to.

A verdict of "Accidental death" was returned. Mr. Bennett intimated that he should have some suggestions to make to the District Council; and Mr. Walker replied that the Council would be willing to do all they could to prevent any further accident. He added that all the claims for compensation had been satisfactorily arranged.

GAS v. ELECTRICITY FOR CLACTON.

A Ratepayer's Views.

The principal question which is at present occupying the attention of the Clacton Urban District Council is whether or not they shall spend £4000 in order to extend the electric light works and maintain the supply of current next season. The Electricity Committee have recommended the outlay, and the matter was fully discussed at the last monthly meeting of the Council. In the course of the debate, it was stated by a member that the Council had already spent £17,000 upon the undertaking, and were still looking for a return on this large outlay. He urged them to put their house in order before they voted £4000 more. Last year they lost £800, or equal to a 4d. rate, on the concern; and, from a conversation they had had with the Engineer, it appeared that there were no hopes of improvement this year. The speaker advocated postponing the matter for twelve months; and his suggestion was received with applause. In the result, however, it was adjourned for a week.

Meanwhile, a ratepayer has sent to the local paper a long letter setting forth the claims of gas. He says the *crux* of the whole question, so far as the Council are concerned, is: Can they run both a gas and an electricity department and make them pay without increasing the burden of rates on the non-consumers of electricity? He points out that the gas consumers in Clacton far outnumber the electric light consumers, and yet it is the former who suffer, for they have to pay something for nothing—viz., a 4d. electric light rate; and he asks if this is fair. He says no electric light works will ever be made to pay without a day-load; and this is never likely to be acquired in Clacton. Coming to the question of the quality of the light, the writer considers the subject from the standpoint of economy, healthiness, security, reliability, and effectiveness. He shows first that, in consumption alone, electricity is nearly ten times dearer than gas, while it has 15 per cent. less illuminating power. On the sanitary question, he remarks that it is claimed for the electric light that with it there is little or no heat, that there are no fumes, and that it is absolutely clean. Admitting all this, he points out that in a room lit by electricity the air is practically stagnant, the exhalations of the human body are not carried away, and a depressing effect is the result. With a bunsen burner and an inverted mantle, however, the combustion of gas is rendered perfect. No smoke, soot, carbon particles, or unconsumed gas are given off to the atmosphere. Moreover, the heat of this class of burner is very great, and acts as one of the best ventilating helps in an ordinary room. On the point of security, it is mentioned that in 1906 the proportion of fires in London among consumers of gas was 1 in 3500, whereas among electric light users it was 1 in 750. The fact is emphasized that gas gives warning, and will not fire unless a light is applied to it. Electricity, on the other hand, gives no warning. Short-circuits, fusings, &c., are the work of a second; and they seem inevitable. With regard to the unreliability of the electric light, the writer cites the case of Oxford Street in the Christmas season of 1906. He then deals with the effectiveness of gas compared with electric lighting, and submits that the former is the better illuminant for the shopkeeper. Summarizing the various points considered, he claims for the inverted incandescent gas-burner the following advantages: It is more economical than electricity, perfectly hygienic, more secure, absolutely reliable, and more effective. He urges the members of the Council to consider whether gas and electricity can both be run at a profit, whether the use of electricity is likely to increase in the town, and whether the extra rate will deter people from taking up their residence there.

METROPOLITAN WATER BOARD.

Charge for Water for Gardens.

At the Meeting of the Metropolitan Water Board last Friday, the Appeal and Assessment Committee presented a report on the Board's future policy with regard to the charge for water for gardens. The Committee pointed out that, under section 25 of the Charges Act of last session, the words "domestic purposes" do not include the watering of gardens by means of any outside tap or any hose, tube, pipe, sprinkler, or other similar apparatus, and that therefore it became necessary to prescribe the charges which should be made for this class of consumption. The practice varies considerably in the different districts, and the Committee thought it should be reduced to uniformity, in view of the fact that the new Act prescribes uniformity of treatment of all consumers under like circumstances. There were three ways, they said, of charging for garden supplies—(1) by meter, (2) according to the area of the garden, and (3) according to the rateable value of the premises. The cost of fixing meters was often unduly large in proportion to the rent produced from garden consumption; but if this burden of cost might be lightly treated, the meter had the undoubted advantage of economizing the consumption. The balance of convenience was, however, in favour of a charge graduated either according to the area of the garden or to the rateable value of the premises; but neither of these methods was an ideal one. On the whole, the Committee thought a combination of rateable value and meter might perhaps be the most convenient; and, as the Finance Committee had concurred, they recommended—"(1) That, while reserving power to charge by meter or on area, the following scale be adopted for garden supplies where the consumption of water and the size of the garden are not, in the opinion of the Board, exceptional: Rateable value not exceeding £50, 10s. per season; not exceeding £100, 15s.; not exceeding £200, 20s. (2) Where the premises exceed £200 rateable value or a sprinkler is used, the garden supply to be separately afforded by meter at the trade scale, but without imposing a minimum rent." A proposal was made by Colonel Rotton to refer the first recommendation back to the Committee for further consideration, as he thought some difficulty might arise with regard to the words "per season." But, put to the vote, it was defeated; and the recommendations were adopted.

COLNE VALLEY WATER COMPANY.

Further Capital Authorized.

In moving the adoption of the report and accounts at the half-yearly meeting of the Company last Tuesday, the Chairman (Mr. C. E Keyser) said he was glad once more to be able to congratulate the shareholders on the prosperous condition of the undertaking. First with regard to water-rates, the total amount in the six months to Dec. 31 was £21,243, as compared with £20,147 for the corresponding period of the previous year, or an increase of £1096. If to this was added the increase in the first half of 1907 (£1729), there was a total gain for the year of £2825. The increases in the previous three years were: 1904, £2730; 1905, £2547; 1906, £2991. This gave an average of £2756; so that last year was above the average of the preceding three years, though 1906 was a record. As to new supplies, they still came steadily on; and there was no doubt the district continued to grow rapidly. The total new supplies in the six months were 568, bringing in an annual rental of £1439. The number for the first half of the year was 514, bringing in £1482; so that the total for 1907 was 1082 new supplies, bringing in £2921. The Company had now over 16,000 supplies; while the estimated population was about 88,500. He thought that it was greatly due to the undertaking and to the good water supplied that the district had increased in population in the way that it had done. The sum received for building supplies was £1232 in 1907, compared with £1183 in 1906, and £1260 in 1905. The increase in the expenditure in the past half year was £469, of which nearly £300 was on account of rates and taxes. The payment of the full statutory dividends was recommended—10 and 7 per cent. on the 10 and 7 per cent. shares respectively. The average daily consumption of water in 1907 was almost the same as in 1905, and less than in 1906. No doubt this was owing to the wet and inclement weather last year, which caused less water to be used, especially in the case of supplies by meter. All the works were reported by the Engineers (Messrs. John Taylor, Sons, and Santo Crimp) to be in a thoroughly efficient and satisfactory condition. The new wells and headings at Eastbury Road were not yet completed, but probably would be in the course of the next few weeks. The quantity of water obtained there was phenomenal; and certainly the Directors had been justified in their policy of going a little farther away, and getting a quite independent supply. They would not have to contemplate any further well-sinking for many years to come, even if the population continued to grow at the present rate. Further capital would have to be raised, as there was now over £5000 at the debit of capital account, and money was also required for extensions of mains, &c., during the next twelve months.

The report and accounts were adopted and the dividends recommended were declared; and subsequently an extraordinary meeting was held, at which the Chairman proposed that the capital should be increased by the creation of 2000 new ordinary shares of £10 each, under the provisions of the Colne Valley Water Act, 1907. He explained that the shares could only be issued by tender; and the intention was now to allot 800, the proceeds of which would carry them through this year. The total number which authority was asked to issue would be all that would be needed over the next three or four years. The Directors had fixed the minimum price for the new shares at £16 10s. The proposition was unanimously agreed to.

Mr. C. F. Mackenzie Richards, Mr. W. H. Booth, and Messrs. Tullock and Weaving have been appointed by the Diss Urban District Council to prepare, before the 21st prox., separate reports and estimates for a public water supply.

PROFESSOR BARRETT ON "DOWSING."

An Old Superstition in a New Light.

Under the auspices of the Young Men's Guild in connection with Prince's Street Congregational Church, Norwich, a lecture was recently delivered by Professor Barrett, F.R.S., of Dublin, on the subject of the use of the hazel twig in searching for water. As the name of the lecturer will be remembered by many of our readers in connection with the investigations which have been undertaken from time to time (notably by the Society for Psychical Research) with the view of ascertaining the real value of the powers attributed to the "dowser," we give the principal portions of his discourse. It was illustrated by lantern views, and an experienced amateur dowser produced his forked twig and demonstrated the manner of its use.

In commencing his lecture, Professor Barrett said he proposed to tell the story of what was formerly regarded by all enlightened scientific men, and was still considered by many scientific men, as a survival of an ancient superstition—a relic of a time of ignorance and credulity, flourishing in certain districts in spite of board schools, technical schools, scientific colleges, and an omniscient newspaper press. In the south-west of England, and especially in Somersetshire, it was exceedingly difficult to find underground water. Many wells had been sunk fruitlessly, and it was in that district that dowsers most abounded. No one now would think of sinking a well in that district without employing a dowser. The geologist, who was supposed to know all about the inside of the earth, if asked to explain the success of the dowser, would shrug his shoulders and say, "It is all humbug. The twisting of the twig is merely a bit of stage play, the finding of underground water in most places is an easy matter." The geologist would also explain that the dowser was an experienced man—a man with mother wit, and a clever eye for the ground, and one who selected a likely spot and used the twig just as a conjurer used his wand. In fact, the geologist would say that the dowser was either a knave or a fool—probably both—and certainly a charlatan. He (the lecturer) confessed that this was his own view when, some fifteen years ago, he was asked by the Council of the Society of Psychical Research to undertake a scientific investigation of the whole matter. Many eminent men, large landlords, several members of the late Lord Salisbury's Cabinet, including Lord Salisbury himself, had tried to find underground water on their estates, and had failed, until they called in a dowser, when they met with success.

Yielding to the judgment of his friends, he agreed to make an investigation, fully believing that a short inquiry would relegate the whole matter to what Milton had called "that limbo, large and broad, since called the Paradise of Fools." But, contrary to his expectations, the more difficult and perplexing the inquiry proved to be. After five years, the task had grown to considerable dimensions. He had written some 6000 letters to different parts of the world, inquiring of people who had employed dowsers; he employed a staff of people to investigate personally; and he himself visited many places. After all this work and investigation, he published his first report on the subject, extending over 500 or 600 pages, on the results obtained up to date; showing that those who had been speaking in such a confident way as to the dowser being a charlatan knew nothing about the subject. This last remark led him to give a useful caution. We were too much inclined to believe that a man who was eminent in one direction knew all about other subjects, and we were inclined to take his word for gospel. Such a person might be a good authority on one particular subject which he might have made the business of his life, while his opinion on others might be of no more value than that of the "man in the street." This was the case with the geologists. They had not investigated the subject. They were supposed to be the only accredited water finders, and their trade was certainly in danger. Five years later, he issued another report. A third was in process of preparation. It was only by such slow and patient investigation that science could hope to get to the bottom of any subject.

Passing on to consider the question of when the practice of dowsing arose, the lecturer said that, after ransacking the British Museum and other libraries in England and Ireland, and employing readers and searchers on the Continent, he arrived at a complete bibliography of the subject, extending over many pages, and embracing several thousands of books and treatises which had been published during the last 400 years. The origin of dowsing could not be traced back, he found, farther than the latter end of the Fifteenth Century—about 1480. Beginning with Sebastian Munster's "Cosmography," published in Basle, Professor Barrett dealt with a long series of references. At this early period, he said, the dowser was employed for discovering buried treasure and metallic ores only; it was only in comparatively recent times that his services were requisitioned for finding water. Turning to the results of his own prolonged investigation of the success or otherwise of the dowser, the lecturer first of all remarked that, as all geologists knew, in certain districts where an impermeable stratum, such as clay, was covered by a permeable stratum, such as gravel, if one dug anywhere beneath the surface soil water was sure to be found. Places like these, therefore, supplied no test of the dowser's power. An essential condition of the test was that the discovery of underground water should be very difficult to make, except under skilled geological advice. He had sought for cases where the dowser had been called in after repeated and fruitless trials to find water by wells or borings had been made, and often after expert scientific advice had been obtained. He had investigated 105 cases of dowsing in Great Britain, as mentioned in his first report. Of these, 95 were successful and 10 were failures. In 40 of the successful cases, adjacent wells had been sunk to as great or greater depth before the dowser was called in, and little or no water found; whereas the spot selected by the dowser yielded abundant water. In his second report, he investigated many more cases; and, in addition, he had collected, in the two reports, first-hand evidence of more than 100 cases, in various parts of the Continent and in America, where the dowser was successful after other means had failed. The percentage of failures on the part of a good dowser did not exceed 10, and in some cases it was far less.

Having given details in regard to some of the more remarkable cases illustrating the success of dowsing, Professor Barrett came to the explanation of the phenomenon. He said there were two things to be explained—the turning of the rod and the finding of the water. The turning of the rod was not done consciously by the dowser. It was a case of unconsciousness, or involuntary muscular action—automatic action, such as were walking, reading, and speaking. These automatic, involuntary actions were carried on by an internal economy, by a subliminal self—a self within a self—which controlled the automatic action. The only way in which automatic action could be affected was by some emotional disturbance. This unconscious automatic action, he believed, explained the phenomena of Planchette writing, table-moving, &c., and it caused the movement of the dowsing-rod. It was not due either to electricity or to some radio-active force. It was no physical action whatever—it had nothing at all to do with the physical world; nor was it due to chance coincidence or to the clever detection of surface signs. No; the movement of the rod was only an illustration of unconscious muscular action. The dowser could only discover underground water when he was set upon dowsing. In his ordinary normal condition, he would not be affected by the presence of water beneath the ground. Many of them felt a peculiar sensation when they were set upon dowsing, and only then. Whether it was metals, buried coins, or water, or gas or water pipes, if a dowser was told what it was, he was sure to find it. It was an unconscious perceptive power which certain individuals had similar to the power possessed by animals, and called by us instinct, to cloak our ignorance. The dowser was a person who possessed this instinctive perception of something which could not be seen by normal vision; and it produced in him a little emotional disturbance that moved the muscles that unconsciously moved the rod. It must not be assumed that everybody in whose hands the rod was moved by involuntary muscular action was a dowser, and would be able to find water. He had no doubt 50 or 60 people in his audience would find that the rod would twist in their hands; but this did not prove that they would be able to find water. The theory he had ventured to put before them was supported by a great number of experiments.

In conclusion, the lecturer said that to compress into one hour the investigations of fifteen years was not easy. However, he trusted his hearers would feel with him that, though future inquiry would clear up much that was still doubtful, yet at any rate the subject was now in a fair way of being rescued from the disorderly mystery of ignorance, and entering the threshold of the ordered mystery of science—that was to say, superstition was giving way to knowledge. Moreover, the subject was not only obviously one of considerable practical importance, but of great theoretical interest, from the larger problems it presented; for within what was often the very humble personality of a dowser, there were seen strange transcendent powers which gave us a glimpse of "the eternal deep, haunted for ever by the eternal mind."

NOTES FROM SCOTLAND.

From Our Own Correspondent.

Saturday.

It is announced in Edinburgh to-day that the Secretary to Messrs. Bruce Peebles and Co., Limited, has issued a circular to the shareholders, calling a meeting for Monday, the 24th inst., at which a resolution will be submitted proposing that the Company go into liquidation. The circular states that the proposed liquidation is with a view to reconstruction, and that the step has been rendered necessary owing to the necessity for further working capital. The shareholders, it is stated, will recollect that in April last they sanctioned an increase of the Company's borrowing powers, with the view to a further issue of debentures, but that, by reason of the extreme stringency of the Money Market, it was found impracticable to make such an issue; and, for the same reason, it has not been possible to realize advantageously the securities in which the Company is interested. The Auditors are at present engaged on the preparation of the accounts. Plans for the reconstruction of the Company are already under consideration by the Directors, and have been submitted to, and favourably received by, some of the larger creditors and representatives of the preference shareholders. The resolution to be proposed is to the effect that it has been proved to the satisfaction of the meeting that the Company cannot, by reason of its liabilities, continue its business, and that accordingly it be wound up voluntarily. Mr. A. W. Tait, of London, is to be proposed as Liquidator; and instructions are to be sought to have the liquidation placed under the supervision of the Court of Session. Only a fortnight ago it was announced that the Gas Department of the Company had been transferred to a private limited Company. The capital of that Company was reported in the local newspapers as £15,000, in £1 shares.

The members of the Western District of the Scottish Junior Gas Association had before them to-night the question of the hour for all who are interested in gas supply—the subject of gas heating and cooking. It was introduced by Mr. A. P. Main, of Falkirk, a master mind on the subject. I had the pleasure, a fortnight ago, of seeing the works of Messrs. R. & A. Main, at Falkirk, on the occasion of the visit to them of the members of the Eastern District; and from what I saw then, I concluded that the members of the Western District would, when Mr. Main read his paper to-night, be entertained to something which would be of more than usual interest. This has proved to be the case. Mr. Main, with an unbounded faith in gas for heating and cooking, put his subject before the Association in a way that cannot fail to enlist the energies of his hearers in the direction of promoting the use of gas for the purposes which are so rapidly everywhere opening up for it. The author appeals to gas manufacturers to assist the movement, by the supply of gas of suitable quality, at suitable pressure, for consumption in gas fires and cookers; and also to assist in devising, or, at all events, in developing the adoption of, appliances which will yield the best return for the gas consumed. There can be no doubt that everyone is eager to forward the objects Mr. Main has in view.

What is known as the Dundee gas scandal—the theft of a cash-box containing £43 from the gas office in October last—has been much

before the community this week. On Tuesday, Mr. A. W. Stiven, the Gas Treasurer, issued to members of the Town Council a long statement explaining his position all through the incident and at the present time. In the Town Council late on Thursday evening, consideration of a report by the Finance Committee on the subject was reached, but, on account of the lateness of the hour, the Council adjourned without going into the matter. Now to-day it is announced that the Procurator-Fiscal for Forfarshire, having concluded his investigations into the affair, has forwarded to the Crown Counsel in Edinburgh the evidence he has collected, and that upon Counsel will now devolve the duty of deciding what further action, if any, shall be taken.

Following up the resumed, and apparently to be successful, efforts to effect a transfer of the undertaking of the Selkirk Gas Company, to which reference was made last week, there has this week been issued to the ratepayers an official statement by the Town Council on the subject; and the Council, in view of their resolution to accept the offer of the Gas Company, "with the consent of the ratepayers," have called a public meeting for the purpose of considering the resolution of the Council. In the official statement, it is recalled that the Company, not with a view to sale, but simply for their own information, had their undertaking valued, the sum brought out being £25,850; that the undertaking was afterwards valued by Mr. W. R. Herring, of Edinburgh, on behalf of the Council, the sum arrived at being £10,087; and that the present offer amounts to £12,700. It is concluded that the annual cost to the burgh of Selkirk would be: Interest, at 3¾ per cent., on £16,326, £612; sinking fund, on £14,620 for thirty years at 3 per cent., £307; and extra depreciation for short-lived plant, £40—together, £959. This sum would clear the whole cost of buildings, plant, and stock in thirty years. In the estimate, it is stated, everything is taken at the worst; and the Council think that the annual cost may fairly be reckoned as between £850 and £960. The profits of the Company for the last five years averaged £1165. Deducting from this sum £235, the average outlay upon extensions and renewals, the amount left was £930; so that the position of the burgh after purchase was not going to be worse than at the present time. The Town Council and the Special Committee of the Council who had been dealing with the matter, were of opinion that they had now reached the lowest point at which the Company would sell. The question was whether they should buy the concern or leave it. Up till now the Company had been restricted to a 10 per cent. dividend. They were now free to pay whatever dividend they could extract from the ratepayers; and every penny per 1000 cubic feet of gas meant £140 transferred from the pockets of the ratepayers to those of the shareholders. The Company could now distribute without question the whole sum which at present is in cash, in the bank, and in investment (about £2703), and borrow more for any future extensions which might be necessary. The Company can, if they wish, apply for statutory powers. If they do so, they may be entitled to add to their capital whatever sums have been spent in additions to the works and plant, out of revenue. The position of the burgh would be that, in the event of the Company taking either of these courses, they could refuse the use of the streets. Apart from any other objection to this course, it would mean that the burgh would be without a gas supply. The burgh could charge for wayleave, or proceed to erect new works. In the first case, the Company would no doubt maintain that they had a prescriptive right to the use of the streets; and in the second case, that, before proceeding with the erection of new works, the burgh must offer the Company arbitration. On both of these questions there was considerable doubt. There was a division of legal opinion, and no decisions in Court. The cost of fighting would be equally fatal to the Gas Company and to the burgh. In the event of the Company applying for statutory powers, the burgh could either object to the capital which the Company proposed, or might decide to go in for new works; but in either case there would be the same dispute and the same expenses. This moderately worded message to the ratepayers ought to have great weight with them.

In the Kilmarnock Town Council this week, Mr. T. Smith, in accordance with notice given, moved that the extra price of gas consumed through prepayment meters be reduced from 5d. to 2½d. per 1000 cubic feet. After a discussion, the motion was carried by twelve votes to nine.

The Dumfries Town Council have had a difficulty with one of their coal contractors, in the matter of the delivery of coal. This Contractor undertook to deliver, during the year from May 15, 1907, to May 15, 1908, 1000 tons of No. 1 Motherwell cannel. The quantity of that coal delivered, it was reported to the Town Council last week, was 87 tons 8 cwt.; but there had been delivered, of a substituted cannel, 319 tons 14 cwt.—making a total of 407 tons 2 cwt. The balance to be delivered is therefore 592 tons 18 cwt. The Contractor, it was stated, alleged that there was a stoppage, such as was covered by the contract. The Gas Committee recommended that £100 should be retained meantime from the amount of the Contractor's account, in respect of failure to implement the contract. It was stated that the Manager wished delivery of the coal contracted for at the rate of 50 tons per month. Provost Glover said that the substituted coal had been accepted at 2s. 3d. per ton less in price. Bailie Thomson said there had been no loss to the Council in accepting the other cannel; it was an inferior kind; but it had been supplied at a lower price. The Bailie went on to say that he might be wrong, but he thought the Contractor had been disposing of the coal elsewhere. However, he did not know that they could make anything of it if they went into Court, as they would have to prove loss. The Committee's recommendation was agreed to.

At the last meeting of the Sanquhar Town Council, the Town Clerk reported that the Sheriff-Substitute had confirmed the adoption of the Gas Acts by the burgh. A Committee was then appointed to arrange with Messrs. Macrae and Forsyth—the temporary owners of the gasworks—for the taking over of the undertaking; the Committee to report to the next meeting of the Council.

The Dunfermline Town Council had before them, at their meeting on Monday, an application on behalf of proprietors and occupiers of properties in the villages of Limekilns and Charlestown, about five miles from Dunfermline, offering to take a supply of gas from the Corporation. The Manager—Mr. A. Waddell—was instructed to prepare an estimate of the cost of the necessary work and plant.

The Cowdenbeath Town Council on Thursday, on the motion of Bailie Shand, appointed a Committee to consider the advisability of acquiring the undertaking of the Cowdenbeath Gas Company under the powers contained in the Burghs Gas Supply (Scotland) Act of 1876. It is intended that the Committee shall report to the Council in July, which would give time for the laying of the matter before the ratepayers before the election next November. All the councillors were agreeable to an inquiry being made.

The annual reunion of the employees of the Peterhead Corporation Gas Department was held on Wednesday evening. For the occasion, the coal-store in the gas-works had been transformed into a concert hall, and very prettily decorated. In the course of the entertainment, Bailie Birnie, the Convener of the Gas Committee, stated that during the past year they had executed improvements upon the gas-works, at a cost of about £3000, with the result that the works had advanced far beyond their most sanguine expectations. They had in contemplation the erection of a new roof to the retort-house, and of dwelling-houses for their employees. During the year, the ordinary consumers had increased by 38, and prepayment consumers by 103. When he told them that prepayment consumers had paid £1511, they would have some idea of the extent of the business being done. There had been an increase of more than 2 million cubic feet of gas over the previous year, which, it would be remembered, was a record one. He thought that great credit for all that had been effected was due to the Manager—Mr. W. Ritchie—and to his staff, all of whom he desired to thank for the way they were serving the Town Council.

CURRENT SALES OF GAS PRODUCTS.

LIVERPOOL, *Feb.* 15.

Sulphate of Ammonia.

There has been no change in the situation; the announcement of the quite exceptional export figures for January having been anticipated and discounted. Demand continues to absorb current production, but requirements have not been sufficient to bring about an advance in values. The closing prices, therefore, remain £11 17s. 6d. per ton f.o.b. Hull, £12 per ton f.o.b. Liverpool, and £12 2s. 6d. per ton f.o.b. Leith. For delivery over the spring months, makers require a premium on spot prices, which buyers so far have been unwilling to pay; there having been a certain amount of speculative selling abroad at the level of spot prices. There has been inquiry for delivery up to the end of the year, and £12 to £12 2s. 6d. per ton is being quoted, but no business has transpired.

Nitrate of Soda.

This article is firm, and a fair amount of business is being done both for prompt and near months. The spot prices are 11s. 3d. and 11s. 4½d. per cwt. for 95 per cent. and refined qualities respectively.

LONDON, *Feb.* 17.

Tar Products.

There is little of interest in the markets, and the low average of prices all round continues. The fall in pitch appears to have stopped for the time being; but the outlook is not hopeful in the event of makers having any further quantity to dispose of this side of June, as there are practically no orders for near delivery. Creosote remains quiet, with an easier tendency for near delivery. Several of the large makers, owing to the delay in the arrival of tank steamers, are compelled to sell some quantity for near delivery. Benzol 90 per cent. remains quiet with a tendency to be still easier, especially in the North. Benzol 50-90 per cent. and toluol are both neglected; the latter having been offered at 8½d. in the North. Solvent naphtha remains depressed. Country makes are offering in London at 10¼d.; and in the North it is said that under 9d. was accepted for one parcel. Carbolic acid is steady. The buying in of dealers who sold short keeps the market at 1s. 6¾d. to 1s. 7¼d., according to port, though the Continent refuse to offer more than 1s. 6½d. east coast.

The average values during the week were: Tar, 12s. 6d. to 16s. 6d. *ex* works. Pitch, London, 20s. to 20s. 6d.; east coast, 19s. 9d. to 20s.; west coast, 18s. 6d. to 19s. 6d. Benzol, 90 per cent., casks included, London 8⅝d. to 8¾d., North 8d. to 8¼d.; 50-90 per cent., casks included, North and London 8d. to 8½d. Toluol, casks included, North 8½d. to 9d., London 9¼d. to 9¾d. Crude naphtha, in bulk, London 3¾d. to 4d., North 3½d. to 3¾d.; solvent naphtha, casks included, North 9d. to 10d., London 10d. to 10¼d.; heavy naphtha, casks included, London 11d. to 11¼d., North 10d. to 10½d. Creosote, in bulk, London 2⅝d. to 2¾d.; North 2¼d. to 2⅜d. Heavy oils, in bulk, 2⅞d. to 3d. Creosote, Midlands, 2¾d. Carbolic acid, 60 per cent., casks included, east coast 1s. 6¾d. to 1s. 7d., west coast 1s. 6¼d. to 1s. 6½d. Naphthalene, £4 10s. to £8 10s.; salts, 42s. 6d. to 45s., packages included and f.o.b. Anthracene, "A" quality, 1½d. to 1¾d. per unit, packages included and delivered.

Sulphate of Ammonia.

This article is steady, and prices have been slightly easier during the past week. There does not, however, seem to be any reason to fear but that prices will be well maintained, in view of the highly satisfactory increase in the British exports for December and January last, and the evidence that Japan is not only shipping largely, but also still a buyer. London manufacturers ask £12 5s., and outside makes are fetching £11 17s. 6d. to £11 18s. 9d. on Beckton terms. Hull is steady at £11 17s. 6d. to £11 18s. 9d.; and Liverpool at £11 18s. 9d. to £12. In Leith, sellers are asking £12 2s. 6d.; but buyers refuse to offer more than £12. The Scotch makers are known to be practically fully sold to the end of March.

The winner of the gold medal at the recent London and Paris Dress Exhibition at Earl's Court (Miss C. E. Macrone) has written to Messrs. Bland and Co., who lighted her stand with their inverted incandescent burners, to express her satisfaction with the very efficient way in which the work was carried out. Miss Macrone says the stand was generally acknowledged to be the "best lighted in the exhibition;" the burners showing to perfection the delicate tints and colours of the fine display of ostrich feathers for which the medal was awarded.

COAL TRADE REPORTS.

Lancashire Coal Trade.

There are signs, though not very strong ones, that before long some easement in prices will take place. The demand for gas coal and cannel, as well as house coal, is slackening; and this will tend to increase the supplies of steam and engine fuel. Coal for shipping and export is still a busy department. The inquiry for furnace coke, however, is less pronounced. The depression in the pig iron market accounts for this diminution in coke supplies. There is also less activity in the engineering trades. Prices of the various qualities of coal at the pits are still unchanged. At the Westminster Palace Hotel a week ago, the Coal Conciliation Board met to discuss certain matters in the administration of the Miners Federation in the collieries, at which, after much discussion, an understanding, it is reported, was arrived at.

Northern Coal Trade.

While the coal trade has shown quietness of late, there has also been much negotiation for some of the large contracts that are usually allotted at this season. In the steam coal trade, best Northumbrians are about 12s. per ton f.o.b., second-class steams from 11s. to 11s. 3d., and steam smalls from 6s. to 6s. 6d. Work at the collieries seems to be fair; but in both steam and gas coals, the output is ample for all the needs, and there is occasionally an idle day at some of the pits. In the gas coal trade, the deliveries are tolerably full. The demand is, however, now considerably less than the maximum; and it will decrease for some time to come, though with the counterbalance of larger foreign shipments. Durham gas coals vary, according to quality, from about 11s. 9d. to 13s. per ton f.o.b. As to contracts, that for the gas coal for Esbjerg is fixed; and it is thought that after the freight allowance has been made about 12s. 6d. per ton f.o.b. will remain for best Durham gas coals. Some heavy contracts for coal for Stockholm and other Swedish ports have been settled at a reduced price; but these are chiefly for railway uses. The coke market is steady generally, and gas coke does not show much alteration in price. Good gas coke is from 18s. to 18s. 6d. per ton f.o.b.

Scotch Coal Trade.

The market remains weak, with a downward tendency in prices. The strength of the foreign trade seems to have oozed away; and the home request, though improving, is, on account of depression in some trades, not sufficiently strong to make up for the loss in foreign customers. The very mild weather has also made the demand for household purposes visibly less. The prices quoted are: Ell 11s. 9d. to 13s. per ton f.o.b. Glasgow, splint 12s. 6d. to 12s. 9d., and steam 11s. 9d. to 12s. The shipments for the week amounted to 229,186 tons—an increase of 27,941 tons upon the previous week, but a decrease of 39,440 tons upon the corresponding week of last year. For the year to date, the total shipments have been 1,159,879 tons—a decrease of 162,657 tons upon the corresponding period of 1907.

Gas Coal Contract Prices.

Under the above heading, the "Financial Times" on Saturday said: Representatives of Midland colliery firms met in Sheffield yesterday to consider the question of contract prices for gas coal when the annual arrangements come to be made next quarter. The matter was gone into at great length; and while several collieries suggested that an advance of 1s. per ton on the rates now ruling should be exacted, it was informally agreed that at any rate there should be no reduction. The meeting was adjourned to London until early in March, when a final agreement will, it is expected, be reached. The current contract rates for gas coal are from 2s. to 3s. 6d. above the previous year. The coke manufacturers of the South Yorkshire district also held a meeting, and agreed to the maintenance of the present rates of 12s. and 12s. 6d. per ton respectively for unwashed and washed blast-furnace coke at the ovens.

Cutting Off Water to Prevent Waste.

At North London Police Court last week, Mr. D. Collins, Assistant-Solicitor to the Metropolitan Water Board, appeared in answer to summonses taken out by Mr. J. B. Kyffin, the owner of houses in Nesbit Street, Hackney, for unlawfully cutting off the water supply from two of them. Mr. Kyffin said that it had been the custom for many years for the owners of small properties to give gratuities to water inspectors, who would in return report to the owners any small defects in the pipes or fittings, which would then be made good without formal notice. With the passing of the Prevention of Corruption Act, property owners were compelled to stop these gratuities. On the 29th of January, a notice was served intimating that the water-fittings were faulty, and that water was being wasted; but no waste could be found on the premises, though the pipes were examined by practical men. Within a few days the Board's men visited the premises and cut off the water. It was contended on behalf of the Board, first, that the supply to the two houses had been illegally connected; and, secondly, that the water was running away at the rate of 50 gallons per hour under a concrete floor. Mr. Kyffin declined to take up this floor, to see where the water went. Mr. Bros held that the Board were justified in the action they had taken, and dismissed the summonses, with £2 2s. costs.

The Warrington Water-Works Award.—At the last monthly meeting of the Warrington Town Council, the Water Committee reported that the arbitration in connection with the claim made by Mr. Lawson for work done under a contract to extend the water-works had resulted in favour of Warrington. The Corporation had paid £35,484; but the Contractor claimed £71,909, under certain powers to charge for extras for pumping to keep the works safe. The original contract was for £24,000. The Arbitrator had decided that the Contractor owed the Council £1432 and the costs of the arbitration.

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To Gas EconomEE,
Likewise EfficiencEE,
Not forgetting BrilliancEE,
It's always SatisfactorEE,
And a Deadly Foe to ElectricitEE.

THE WINNER OF THE GOLD MEDAL

At the recent London and Paris Dress Exhibition held at Earl's Court, London, writes:

Dear Sirs,

I have great pleasure in telling you how very well satisfied I am with the very efficient way my Stand has been lighted with **BLAND** & Co.'s Incandescent Gas Burners, and generally acknowledged to be the **BEST LIGHTED IN THE EXHIBITION,** giving a perfect light and showing to perfection the delicate tints and colours of my beautiful display of Ostrich feathers, and for which I have the **GOLD MEDAL.**

Yours truly,

Feb. 6, 1908. (Signed) C. E. MACRONE.

We shall be happy to reply to any enquiry respecting
CHURCH, SHOP, FACTORY, DOMESTIC, *or* **PUBLIC LIGHTING.**

BLAND & CO., LONDON and MANCHESTER.
London Show-Rooms: 63, QUEEN VICTORIA STREET, E.C.
Manchester Show-Rooms: 20, FENNEL STREET, CORPORATION ST.
Telegrams: "BLANLITE, LONDON." "GASBURNERS, MANCHESTER."
Telephones: 9239 London Wall and 4168 Central, Manchester.

The Eight Hours Bill and the Price of Gas.

A meeting was recently held of the Sub-Committee appointed by the Council of the Newcastle Chamber of Commerce to consider the effect of the Coal Mines Eight Hours Bill. Information was laid before the Committee that, as the effect of the Bill would no doubt be to increase the price of gas, the following would be affected: Manufacturers using gas for power purposes, shipbuilders, shipowners, &c., tradesmen who light their places of business to a much greater extent than formerly, and artisans who are large users of gas for lighting, cooking, and heating purposes. It was also pointed out that a twelfth part of the coal consumed in Great Britain is used for the purpose of making gas; and that there are some six million consumers of gas in Great Britain. In Newcastle alone there are about 100,000 gas consumers. The Committee resolved to call a meeting of all those interested as consumers, with a view of arranging a powerful deputation to wait upon the Home Secretary to place before him the consumers' case.

Power-Gas Corporation, Limited.

At the seventh ordinary general meeting of the Power-Gas Corporation, held last Wednesday, the Chairman (Mr. Alfred Mond, M.P.), in moving the adoption of the report (see *ante*, p. 309), expressed the regret of the Directors at the poor result of the year's trading, and remarked that it appeared rather worse than would have been the case if they had not had a bad debt of £2300 in connection with a contract for a plant entered into some time ago. The leading factor in the report was that their engineering works had shown up better last year than they had done for a considerable time, and had contributed £3500 to the profits. With regard to the reduction of capital, the shareholders had been made aware of the way in which the Directors proposed to deal with it. Referring to the Company's prospects, he said the big gas-engine was daily being more recognized as the motor of the future. More people were building it; more confidence was being shown in it; and he did not think the time was far distant when the gas plant and the gas-engine would be looked upon as a standard measure of generating electricity and power generally. When that time arrived, he had no doubt the accounts of the Corporation would look very different from what they were that day. The report was adopted, and a resolution reducing the capital was carried unanimously. Meetings of the ordinary and deferred shareholders were afterwards held, at which resolutions were passed approving of the proposed reduction of capital, and making the necessary alterations in the Articles of Association.

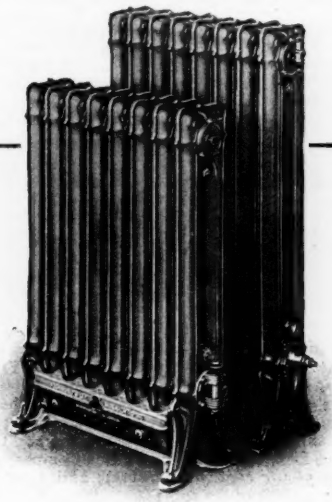
Portsea Island Gas-Fitting Company.—The half-yearly meeting of this Company was held on Saturday—Alderman Sir John Baker in the chair—when a favourable report was adopted, and a dividend of 6s. per share, with a bonus of like amount, was declared.

Gas Explosion at Mansfield.—Considerable damage was done by a gas explosion last Friday week at the house of Dr. Martyn, Chesterfield Road, Mansfield. Shortly before seven o'clock, a servant lighted the kitchen gas-stove, and afterwards the gas in the breakfast-room. Scarcely had she done so when the explosion occurred. All the windows were smashed, the Venetian blinds were blown into fragments, and other damage was done. So far as can be ascertained, the whole of the gas-taps had been turned off the previous night, and the cause of the escape is a mystery. The damage is estimated at £300.

Destructive Fire at Messrs. W. C. Holmes and Co.'s Works.—There has been a bad fire at the works of Messrs. W. C. Holmes and Co., at Huddersfield. On the arrival of the fire-brigade, it was found that the fire had started in the central part of the buildings, and had spread to the pattern-shops. The workpeople in the neighbourhood rendered valuable service in coping with the fire, so that in about two hours it was checked, and three hours later was practically subdued. The main body of the fire was confined to the fitting and boiler-making shops. Messrs. Holmes had recently put down about £4000 worth of machinery, which has been very seriously damaged. The cause of the outbreak is unknown.

Gas Profits at Walsall.—In presenting to the Walsall Town Council the annal report of the Gas Committee (showing a net profit of £8828), Mr. Millerchip said the capital invested in the undertaking now amounted to over £272,000. There had been an increased expenditure during the year of £3282, which was due to the higher price of coal and the increased cost of purification and carbonizing. The revenue side was satisfactory. The sale of gas represented an increase of £754; for coke £1684 more was received; and residuals had also gone up in value. The total revenue was £77,932, and the expenditure £56,523. The gross profit was slightly less than last year; but the net profit was slightly more, and represented a return of 3¼ per cent. One point which could not be regarded as satisfactory was that there was a leakage of gas to the extent of over 7 per cent. Steps were being taken to test the whole of the mains in order to reduce this leakage.

The Price of Gas at Devonport.—Several questions with reference to the price of gas were put to the Town Clerk at a meeting of the Devonport Town Council last Thursday. The questioner was Mr. Burt, a new member of the Council. Referring in the first place to the recent decision of the Council not to increase the price, he asked what would happen if the income derived from the gas undertaking did not meet the expenditure, and the Corporation were called upon to make a rate to meet the deficit, and whether those ratepayers who do not consume gas would be exempt from the payment of such rate. The Town Clerk informed him that no ratepayer would be exempt from the rate if it were made. Mr. Burt then asked on what ground the difference between the price paid for gas supplied through ordinary meters and that sold through automatic meters was greater than in other towns. The Town Clerk's reply was that he was informed that in the majority of towns the difference was greater than in Devonport, and the charge for automatic supplies more. In answer to a further question by the same gentleman, the Town Clerk said there were 7551 consumers who took their gas through prepayment meters, and the average quantity supplied through each was 185 feet a week.



AN APPRECIATION:

"With reference to the Gas Steam Radiators which your Firm supplied for the heating of the Assembly Hall, I have pleasure to inform you that the Radiators have given complete satisfaction, and it is my intention to introduce the same system into the Parish Hall, which is being erected in this town.

Richmond's

"Monarch"

GAS-STEAM RADIATORS.

ADVERTISEMENT OF THE RICHMOND GAS STOVE & METER CO., LTD.
London Offices and Show-Rooms: 132, QUEEN VICTORIA STREET, E.C.
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Price of Gas in Dublin.—Mr. Vance has given notice that at the next meeting of the Dublin City Council he proposes to move—"That a petition be made by the Corporation and two gas ratepayers to the Court of Quarter Session to nominate and appoint some public accountant or other competent person not being a proprietor, to examine and ascertain the actual state and property of the Alliance and Dublin Consumers' Gas Company, and report to the said Court, if a rateable reduction in the price of gas can be made."

Water Supply of Warwick.—Last Wednesday, the Mayor (Mr. J. C. Purser) and Corporation of Warwick attended at Hatton for the opening of a new reservoir for the supply of Warwick with water. The works were designed by Messrs. Wilcox and Raikes, of Birmingham, and were carried out by Messrs. Vale and Sons. The reservoir is underground, and will receive the water by gravitation from the old supply at Haseley and from the new supplementary supply at the Woodloes by pumping. The Mayor turned the water on from Haseley in the presence of a large gathering.

More New Issues of Capital.—As announced elsewhere, Mr. Alfred Richards will offer for sale at the Mart, Tokenhouse Yard, E C., next Tuesday, further new issues of capital by order of Directors. They consist of £5000 of 5 per cent. ordinary stock of the South Essex Water-Works Company, ranking for 4¼ per cent. per annum dividend (free of income-tax) as from the 14th prox.; 400 additional ordinary £10 shares of the Lowestoft Water and Gas Company (last dividend on similar shares 5¼ per cent. per annum); and £1000 of 4 per cent. perpetual debenture stock of the same Company.

Reduction in Price at Stratford-on-Avon.—At the meeting last week of the Stratford-on-Avon Town Council, the Finance Committee recommended that the proposal to reduce the price of gas be deferred for twelve months; and Mr. Tyler moved, as an amendment, that a reduction of 2d. be made from April 1 next. They had now, he said, the competition of the electric light; and as they handed over £1000 in relief of the rates last year, they could well afford to reduce the price of gas. Mr. Flower contended that it was their duty to consider all the ratepayers, and not gas consumers alone. However, the reduction of price was decided upon by ten votes to nine.

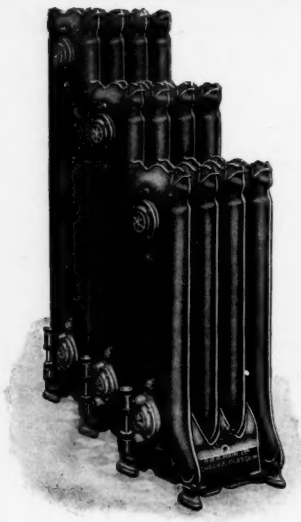
South Staffordshire Mond Gas Company.—The report of the South Staffordshire Mond Gas Power and Heating Company for the year ended Dec. 31 states that during the twelve months the number of ordinary customers has more than doubled. Customers are very well pleased with the gas, and are extending its use in their works. The loss on revenue account is £12,126—£1550 less than last year. The increase in the price of coals during the year accounts for £979, and experimental work for £844 of the loss. The Directors regret that it has not been possible to reduce the loss more rapidly; but at the close of the year they were enabled to effect further economies at the works which should materially help to reduce this during the current year. The average price realized for the gas steadily rises, as more ordinary customers are connected up.

Lamplighters' Wages at Bradford.—When the adoption of the minutes of the Gas Committee was proposed at the last meeting of the Bradford City Council, Mr. Paine moved an amendment instructing the Committee to offer the lamplighters an increase of 1s. per week, to come into force on April 1 next. He contended that the Committee's decision to postpone the question of the increase until the end of the financial year was intended to shelve it altogether. The Committee were acting in defiance of the Council's previous vote. Mr. Glyde said the cost of the increase would be only £400 for about 150 men. Next month the Council would probably vote £500 or £600 in increases to a small number of officials. The amendment was carried by 29 votes to 13; and the minutes, as altered, were approved.

Gas Supply of Addingham.—The Addingham Parish Council are, says the "Yorkshire Daily Observer," becoming ambitious to acquire the control of the local gas supply. The present position is that the gas is made by Messrs. Lister and Co., who put down a plant for the supply of gas to their mill. A local Company was formed; and they agreed to take gas in bulk from Messrs. Lister and Co., and distribute it to consumers in the village. At a recent meeting of the Parish Council, it was suggested that arrangements should be made either to take gas in bulk from the Ilkley Urban District Council, or to erect new works. By the former course, gas could be supplied in bulk at 2s. 7d. per 1000 cubic feet delivered at the boundary. From there to the present gas plant a 7-inch main would have to be laid, at a cost of £800; and the present distributing mains and plant could be purchased from the Gas Company for £1260. By selling gas to consumers at 3s. 11d. per 1000 feet, a profit of £58 per annum could be made for the relief of the rates. The alternative scheme of building works, with a capacity of 8 million cubic feet, would cost £6260. Gas could be sold at 3s. 8d. per 1000 cubic feet without any profit, and in 35 years the plant would be paid for. A parish council have no power to do this; but the proposal is to ask for urban powers.

Proposed Extension of the Paris Gas-Works.—According to a paragraph in the last Engineering Supplement to "The Times," the Prefect of the Seine has just submitted a scheme to the Municipal Council of Paris which relates to important works to be undertaken in order to develop further the appliances for the manufacture of gas. Ever since the price was reduced to 20 c. per cubic metre (about 4s. 6d. per 1000 cubic feet), the consumption has greatly increased, and consequently it has become necessary to provide additional retort accommodation, and increase the output of the existing plant. The new project involves the extension of the Landy station, the construction of new retort-houses with horizontal retorts and De Brouwer charging machines, and the provision of new gasholders with a capacity of 8,829,000 cubic feet. The total cost of these works is estimated at £1,880,000, which would have to be furnished by the city authorities. The amount would be raised by means of a municipal loan secured upon the gas-works, which, under the new *régime*, have become the property of the City. The authorities propose at the same time to develop the distributing system, which is now very inadequate, and construct a certain number of special supply mains, starting from the works, each allocated to its own particular suburb, without having upon it any intermediate branch pipes between the works and the district intended to be supplied.

RADIATORS



PLAIN OR ORNAMENTAL.

WHEN A TRAVELLER TELLS YOU HE IS SELLING THE BEST RADIATOR, YOU MAY BE SURE THAT IT IS

THE "ST. MUNGO" GAS HEATED STEAM RADIATOR

HE IS TALKING ABOUT.

FITTED WITH GAUGE GLASS,
GAUGE GLASS PROTECTOR,
GAS & AIR ADJUSTER,
AUTOMATIC AIR VALVE.
AUTOMATIC GAS REGULATOR,
FIXED CAST-IRON BASE,
AND ALL THAT IS BEST
IN RADIATOR CONSTRUCTION.

HIGHEST GRADE.

R&A.MAIN Ld.,

LONDON, GLASGOW, FALKIRK.

The Promotion of the Kent County Gas Company, Limited.—At the London Bankruptcy Court yesterday (Monday), the inquiry was resumed and closed, before Mr. Registrar Hood, with regard to the promotion and failure of the Kent County Gaslight and Coke Company, Limited. The earlier proceedings were recorded in the "JOURNAL" for Feb. 11 (p. 364); and a full report of what transpired at yesterday's sitting will be given next week.

Lighting of Keady.—At a special meeting of the Keady Urban District Council a few days ago, an estimate of the cost of lighting the town by gas, from Mr. Whimster, of Armagh, was read, stating that plant to supply a million cubic feet would cost about £2200, not including meters. Mr. M'Bride said that the present gas-works were started in 1851; and they were getting about £100 per year; the consumption being 285,000 cubic feet. The present pipes were bad; and at times they lost from 40 to 50 per cent. of the gas. The Clerk read an estimate from Mr. Meenam, of Dublin, naming £2200 as the sum which would be required for the electric light. Several members having advocated the scheme of gas lighting, Mr. Watters moved, and Mr. Fegan seconded, that a new gas-works be built, and the necessary pipes laid for the lighting of the town. The resolution was unanimously passed. The Clerk was directed to write to the Gas Company stating that the Council would be satisfied to agree to the payment of 3s. 9d. per pound share for their interest in the present Company.

During the service at the Wesleyan Church, at St. Annes, last Sunday week, the electric light failed half-a-dozen times.

The business of Wm. Anderson and Co., gas lighting engineers and makers of gas-fittings, 4, North St. David Street, Edinburgh, has been registered in that city. The capital is £5000, in shares of £1 each, for which the public are not invited to subscribe.

Last Thursday the shipbuilding yard of Sir James Laing and Sons, Limited, of Sunderland, was closed; and a notice posted on the gates stated that this had been necessary in consequence of the Corporation stopping the electricity and the Sunderland and South Shields Water Company cutting off the water supply.

The Hampton Court Gas Company have placed an order with Messrs. Robert Dempster and Sons, Limited, of Elland, for four purifiers, 30 feet square and 5 ft. 6 in. deep, with staging, hydraulic lifts, &c. The work will be carried out under the supervision of Mr. W. E. Price, the Company's Engineer and Manager.

The Local Government Board have sanctioned the borrowing of £5910 by the Clacton Urban District Council for the purposes of their gas undertaking. The period for repayment of the loans for mains has been extended from 19 to 30 years, and that in respect of loans for meters and stoves reduced from 19 to 10 years.

A short time ago there occurred in Bristol two or three fires, the causes of which were fused electric wires. As members of the Fire Brigade are not electricians, the Watch Committee of the Corporation have decided to ask the Electricity Committee to arrange for the attendance in similar cases of an expert when called upon.

On the morning of last Saturday week, there was an outburst of fire in connection with the water-gas plant at the Hollinwood Gas-Works of the Oldham Corporation. Three men were scorched about the face or hands; but none of them so seriously as to necessitate medical attention after first aid on the spot. The fire was extinguished by the brigade.

We have received from Messrs. Biggs, Wall, and Co. their new illustrated price list. It is a bound volume of about 360 large pages (11 in. by 9 in.), printed in two colours. The contents are divided into three sections—the first containing gas companies' requirements; the second consisting of general engineers' stores, tools, steam-fittings, &c.; and the third being devoted to articles required for water, sewerage, and municipal works. Of course, the first section is the largest, occupying 172 pages; but the second is almost equal to it. The articles are fully illustrated; and reference to them is facilitated by an index. The volume is a very creditable production.

In the Sheffield City Council, Mr. Simpson moved that electric light should be used for the Attercliffe Baths instead of gas, on the ground that it was preferable; and Mr. Whiteley supported the proposal on the score of "the cheapness of electricity." Alderman Senior remarked that it was not for the Council to go against themselves. If they adopted gas, they could not very well expect other people to take electricity. Mr. Cattell said that when there was electricity at the Glossop Road Baths, the cost was £120 per annum; but with gas it was about £40 a year. The proposition to adopt electricity was, however, carried, in spite of this testimony as to its "cheapness."

With the object of forming a gas-workers' company for the Aston battalion of the new Territorial Army, a meeting of Corporation employees was held at the Gas-Workers' Recreation Room, Saltley, last week. The Chairman (Councillor Bowater) said that, though he was not authorized to speak on behalf of the Gas Committee, he had no doubt they and the managers of the works would give every facility for those who joined the Territorial Army to carry out their military duties. He moved a resolution pledging the employers and employees to assist by every means in their power in the formation of a Gas-Workers' Company. Mr. Henry Hack seconded the motion; and it was carried.

We have received from the Welsbach Incandescent Gaslight Company, Limited, copies of several booklets which they have recently put in circulation among gas managers. The largest is on the subject of the lighting and heating of churches, chapels, and mission-rooms, and will be found useful by clergymen and church governors of all denominations. Two of the smaller ones deal with general lighting—one being an abridged catalogue of the Company's lights and accessories, and the other furnishing particulars of their high-pressure, self-intensifying, and "arc" lamps. Another is devoted to heating by gas, and shows how it is attained in the Welsbach-Kern radiators, a number of examples of which are illustrated. The booklets are of convenient size, and, with the exception of the one on church lighting, could almost be enclosed with accounts or receipts.

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COOKER.

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Co., Ltd.

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COPY FOR ADVERTISEMENTS for the "JOURNAL" should be received at the Office NOT LATER than TWELVE O'CLOCK NOON ON MONDAY, to ensure insertion in the following day's issue.

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Wanted, For Sale, and Tender Advertisements, Six Lines and under, 3s.; each additional Line, 6d.

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All Communications, Remittances, &c., to be addressed to WALTER KING, 11, BOLT COURT, FLEET STREET, LONDON, E.C.
Telegrams: "GASKING, LONDON." Telephone: P.O. 1571a Central.

"ILLUMINATING TRUTHS."

LEAFLETS FOR DISTRIBUTION.

No. 1.—"The Sanitary Aspects of Gas and Electric Lighting."
No. 2.—"The Cleanliness of Illuminants: The Eyesight."
No. 3.—"Fire Risks."
No. 4.—"The Relative Cost of Gas and Electricity, and Matters affecting it."
No. 5.—"On Reliability, with Instances of Misplaced Confidence."
No. 6.—"On Shop Lighting, with Special Reference to the Flame Arc Lamp."
No. 7.—"The Osram Lamp: Fiction and Fact."

This series of Leaflets will be useful, not only for distribution among Householders generally, but for circulation among Shareholders to fortify them with arguments in defence of the commodity in which they have invested capital. Copies of each Leaflet should also be kept in every Gas Undertaking's Show-Rooms.
Prices for Quantities on Application to WALTER KING, 11, BOLT COURT, FLEET STREET, E.C.

WANTED, FOR SALE, CONTRACT, &c., ADVERTISEMENTS IN THIS WEEK'S "JOURNAL."

Situations Vacant.

REPRESENTATIVE (GAS STOVE). No. 4906.
REPRESENTATIVE (COMPO. PIPE, &c.). No. 4905.
MECHANIC AND BLACKSMITH. Waterford Gas Company.
ASSISTANT TO MANAGER. Pontardawe Gas-Works.
CLERK AND BOOK-KEEPER. Oswaldtwistle Gas Department. Applications by Feb. 25.
AGENT. No. 4908.

Situations Wanted.

REPRESENTATIVE. No. 4912.
COLLECTOR. No. 4909.
MANAGER OR ASSISTANT. No. 4910.

Financing Gas and Water Companies.

"GAS AND WATER," care of George S. Smith and Co., London.

Books for Sale.

KING'S TREATISE ON COAL GAS. No. 4911.

Company Meetings.

CRAYS GAS COMPANY. Library, St. Mary Cray. Feb. 26, 6.30 o'clock.
ENFIELD GAS COMPANY. Offices. Feb. 27, 5.30 o'clock.

Stocks and Shares.

LOWESTOFT WATER AND GAS COMPANY. Feb. 25.
SOUTHEND WATER COMPANY. March 3.
SOUTH ESSEX WATER COMPANY. Feb. 25.
SUNDERLAND AND SOUTH SHIELDS WATER COMPANY. Feb. 20.

TENDERS FOR

Burners, Mantles, Chimneys, Lamps, Pendants, &c.

DUBLIN CORPORATION. Tenders by Feb. 25.
NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.

Engine, Boiler, and Pump, &c.

TIVERTON GAS DEPARTMENT. Tenders by March 2.

Fire-Clay Goods, &c.

NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.
TYLDESLEY GAS DEPARTMENT. Tenders by March 3.

Gasholders, &c.

TIVERTON GAS DEPARTMENT. Tenders by March 2.
WEST BROMWICH GAS DEPARTMENT (ADDITIONAL LIFT). Tenders by March 7.

General Stores

(COMPRISING TIN, LEAD, LEAD PIPE, IRON, OIL, PUMP VALVES, RUBBER TUBING, SHOVELS, LIME, CEMENT, &c., &c.). Newton-in-Makerfield Urban District Council. Tenders by Feb. 29.

Governor (Station).

TIVERTON GAS DEPARTMENT. Tenders by March 2.

Meters (Gas and Water).

NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.
TIVERTON GAS DEPARTMENT. Tenders by March 2.

Oil for Gas Manufacture.

CARLISLE GAS DEPARTMENT. Tenders by March 2.

Oxide of Iron (New and Spent).

CARLISLE GAS DEPARTMENT. Tenders by March 2.
NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.
SALFORD GAS DEPARTMENT. Tenders by Feb. 27.

Pipes, &c.

NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.

Sulphuric Acid.

NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.

Tank (Cast-Iron) and Girders.

COVENTRY GAS DEPARTMENT. Tenders by Feb. 24.

Tar.

CARLISLE GAS DEPARTMENT. Tenders by March 2.
EXETER GAS COMPANY. Tenders by March 8.

Valves, Hydrants, &c.

NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL. Tenders by Feb. 29.

Washer (Livesey).

COVENTRY GAS DEPARTMENT. Tenders by Feb. 24.

GAS COMPANIES' STOCK AND SHARE LIST.

Referred to on p. 407.

Issue.	Share.	When ex-Dividend.	Dividend or Dividend & Bonus.	NAME.	Closing Prices.	Rise or Fall in Wk.	Yield upon Investment.
£			p.c.				£ s. d.
590,000	10	Oct. 11	10½	Alliance & Dublin 10 p.c.	19½–20½	..	5 2 5
268,324	‰	,,	7½	Do. 7 p.c.	14–15	..	5 0 0
310,000	Stk.	Jan. 16	4	Do. 4 p.c. Deb.	98–100	..	4 0 0
200,000	5	Oct. 30	7	Bombay, Ltd.	6¼–6⅝	..	5 3 8
40,000	5	,,	7	Do. New, £4 paid	4⅝–5	..	5 12 0
50,000	10	Aug. 29	14	Bourne-mouth Gas & Pref.	10 p.c.	..	4 18 3
51,810	10	,,	7		B 7 p.c.	..	4 2 4
53,200	10	,,	6		16½–17	..	3 17 5
380,000	Stk.	Aug. 15	12½	Brentford Consolidated	14½–15½	..	4 19 2
300,000	,,	,,	9⅜	Do. New	247–252	..	5 0 0
50,000	,,	,,	5	Do. 5 p.c. Pref.	185–190	..	4 0 0
206,250	,,	Dec. 13	4	Do. 4 p.c. Deb.	120–125	..	3 16 2
220,000	Stk.	Sept. 27	11¼	Brighton & Hove Orig.	100–105	..	5 7 1
246,320	,,	,,	8¼	Do. A. Ord. Stk.	155–160	–2	5 3 2
460,000	20	,,	10	British	42½–43½	..	4 11 11
104,000	Stk.	Feb. 13	6	Bromley, Ord. 5 p.c.	116–119*	+1	5 0 10
165,700	,,	,,	4½	Do. do. 3½ p.c.	86–89*	+½	5 1 2
500,000	10	Oct. 11	7	Buenos Ayres (New) Ltd.	11½–12	+½	5 16 8
250,000	Stk.	Dec. 13	4	Do. 4 p.c. Deb.	93–95	+2	4 4 3
150,000	20	July 12	8½	Cagliari, Ltd.	26–27	..	6 2 3
100,000	10	—	—	Cape Town & Dis., Ltd.	6–8	..	—
100,000	10	Apl. 26	4½	Do. 4½ p.c Pref.	7–9	..	5 0 0
50,000	50	Nov. 2	6	Do. 6 p.c. 1st Mort.	48–50	..	6 0 0
100,000	Stk.	Dec. 30	4½	Do. 4½ p.c. Deb. Stk.	92–94	..	4 15 9
157,150	Stk.	Aug. 15	5	Chester 5 p.c. Ord.	108–110	..	4 10 11
1,493,280	Stk.	,, 29	5⅛	Commercial 4 p.c Stk.	104–109	..	4 15 5
560,000	,,	,,	5	Do. 3½ p.c. do.	101–106	..	4 14 4
475,000	,,	Dec. 13	3	Do. 3 p.c. Deb. Stk.	82–84	..	3 11 5
800,000	Stk.	,,	6½	Continental Union, Ltd.	113–118	+3	5 10 2
200,000	,,	,,	7	Do. 7 p.c. Pref.	137–142	..	4 18 7
460,170	Stk.	—	5½	Derby Con. Stk.	122–123	..	4 9 5
55,000	,,	—	4	Do. Deb. Stk.	103–105	..	3 16 2
148,995	,,	—	—	East Hull 5 p.c. Ord.	101–104	..	—
486,090	10	Jan. 30	12	European, Ltd.	22½–23½	..	5 2 2
354,060	10	,,	12	Do. £7 10s. paid	16½–17½	..	5 2 10
15,182,590	Stk.	Feb. 13	4⅛	Gas-light and Coke	4 p.c. Ord.	97–99*	+½	4 8 11
2,600,000	,,	,,	3⅜		3⅜ p.c. max.	86–88*	+½	3 19 7
3,799,735	,,	,,	4		4 p.c. Con. Pref.	104–107*	+2	3 14 9
4,193,975	,,	Dec. 13	3		3 p.c. Con. Deb.	82–84	..	3 11 5
258,740	Stk.	Sept. 13	5	Hastings & St. L. 3½ p.c.		93–98	..	5 2 0
82,500	,,	,,	6½	Do. do. 5 p.c.		114–117	..	5 11 1
70,000	10	Oct. 11	11	Hongkong & China, Ltd.		19–20	..	5 10 0
4,940,000	Stk.	Nov. 14	8	Imperial Continental		180–183	–1	4 7 5
473,600	Stk.	Feb. 13	3½	Do. 3½ p.c. Deb. Red.		92–94*	+¾	3 14 6
195,242	Stk.	Aug. 29	6	Lea Bridge Ord. 5 p.c.		115–120	..	5 0 0

Issue.	Share.	When ex-Dividend.	Dividend or Dividend & Bonus.	NAME.	Closing Prices.	Rise or Fall in Wk.	Yield upon Investment.
£			p.c.				£ s. d.
561,000	Stk.	Aug. 29	10	Liverpool United A	223–225	..	4 8 11
718,100	,,	,,	7	Do. B	164–166	..	4 4 4
306,083	,,	Dec. 30	4	Do. Deb. Stk.	106–108	..	3 14 1
152,736	Stk.	Feb. 13	7⅜	Maidstone 5 p.c.	136–141*	..	5 8 2
75,000	5	Nov. 28	5	Malta & Medn., Ltd.	4½–4⅝	+⅛	5 5 3
560,000	100	Oct. 1	5	Met. of 5 p.c. Deb.		..	4 17 1
250,000	100	,,	4½	Melbourne 4½ p.c. Deb.		..	4 7 5
541,920	20	Nov. 14	3½	Monte Video, Ltd.		..	6 5 9
1,775,892	Stk.	Aug. 15	4⅜	Newc'tle & G'tesh'd Con.		+⅛	4 5 3
418,460	Stk.	Dec. 30	3½	Do. 3½ p.c. Deb.		..	3 19 7
15,000	10	Aug. 29	10	North Middlesex 10 p.c.		..	4 17 7
55,940	10	,,	7	Do. 7 p.c.		..	5 0 0
300,000	Stk.	Nov. 28	8	Oriental, Ltd.		+2	5 12 8
60,000	5	Sept. 13	7	Ottoman, Ltd.		..	5 7 8
398,490	5	Oct. 30	7	Primitiva Ord.		..	4 16 7
796,980	5	Jan. 30	5	Do. 5 p.c. Pref.		..	4 17 7
488,900	100	Dec. 2	4	Do. 4 p.c. Deb.		..	4 4 3
1,000,000	10	Oct. 11	8	River Plate Ord.		..	5 14 4
312,650	Stk.	Dec. 30	4	Do. 4 p.c. Deb.		..	4 4 3
250,000	10	Sept. 27	8	San Paulo, Ltd.		..	5 18 6
125,000	50	Jan. 2	5	Do. 5 p.c. Deb.		..	4 18 0
135,000	Stk.	Sept. 13	10	Sheffield A		+1	4 1 0
209,984	,,	,,	10	Do. B		+1	4 1 0
523,500	,,	,,	10	Do. C		+1	4 1 0
70,000	10	Nov. 14	10	South African		..	6 9 0
6,429,895	Stk.	Feb. 13	5⅛†	South Met., 4 p.c. Ord.		–1½	4 6 8
1,895,445	,,	Jan. 16	3	Do. 3 p.c. Deb.		..	3 10 7
201,720	Stk	Sept. 13	8	South Shields Con. Stk.		..	5 2 7
605,000	Stk.	Aug. 15	5⅜†	S'th Suburb'n Ord. 5 p.c.		..	4 8 1
60,000	,,	,,	5	Do. 5 p.c. Pref.		..	4 1 4
117,058	,,	Jan. 16	5	Do. 5 p.c. Deb. Stk.		..	4 0 0
502,310	Stk.	Nov. 14	5	Southampton Ord.		..	4 11 9
120,000	Stk.	Aug. 15	6⅔	Tottenham and Edmonton	A 5 p.c.	..	5 8 10
398,940	,,	,,	5⅓		B 3½ p.c.	..	5 0 0
149,470	,,	Dec. 13	4		4 p.c. Deb.	..	3 19 3
182,380	10	Dec. 30	8	Tuscan, Ltd.		..	7 8 10
149,900	10	Jan. 2	5	Do. 5 p.c. Deb. Red.		..	5 0 0
193,742	Stk.	Aug. 29	5	Tynemouth 5 p.c. max.		..	4 11 9
30,000	Stk.	Feb. 14	8	Wands-worth and Putney	A 5 p.c.	..	—
255,636	,,	Feb. 13	6⅛		B 3½ p.c.	125–130*	+½	5 0 0
75,000	,,	,,	5⅝		C 3½ p.c.	..	—
80,075	,,	Dec. 30	3		3 p.c. Deb. Stk.	73–78	..	3 16 11
845,872	,,	Aug. 15	5⅛	West Ham 5 p.c. Ord.		103–106	..	4 16 6
185,000	,,	,,	5	Do. 5 p.c. Pref.		118–120	..	4 3 4
228,300	,,	Dec. 30	4	Do. 4 p.c. Deb. Stk.		102–107	..	3 14 9

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Next displayed advertisment will appear on Feb. 25.
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Telephone: 369 WESTMINSTER. Telegrams: "MILLWRIGHT" LONDON.

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CHANCE AND HUNT, LTD., Chemical Manufacturers, OLDBURY, WORCS.
Telegrams: "CHEMICALS."

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AMMONIACAL Liquor wanted.
BROTHERTON AND CO., LTD., Ammonia Distillers.
Works: BIRMINGHAM, GLASGOW, LEEDS, LIVERPOOL, WAKEFIELD, AND SUNDERLAND.

GAS TAR wanted.
BROTHERTON AND CO., LTD., Tar Distillers.
Works: BIRMINGHAM, GLASGOW, LEEDS, LIVERPOOL, WAKEFIELD, AND SUNDERLAND.

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Can be Exchanged for Spent Oxide.
READ HOLLIDAY AND SONS, LTD., HUDDERSFIELD.

PINCHBECK'S Meters and Burglar
PROOF STRONG BOX.
See illustrated advertisement, Feb. 4, p. I. of Centre.
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TO Gas Managers, &c., Wanted, Old
Condemned GAS-METERS, from 1-light to 1000-light, for destruction to re-claim Metals. Write for Prices, Stating Quantities and Sizes, and if Wets or Drys. Scrap Metals, Drosses, Metal Shop Sweepings, &c., also bought.
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AND
CARBURINE FOR GAS ENRICHING.
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THE MAXIM PATENT CARBURETTOR.
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JOHN E. WILLIAMS AND CO.,
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For all Joints in connection with Oil-Gas Plant and Sulphate Plant.
For all Gas Joints.
For all Tar Joints.
For all Ammonia Joints.

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facturers, Hapton, near Accrington, are MAKERS of Special SULPHURIC ACID, for Sulphate of Ammonia Making. Highest percentage of Sulphate of Ammonia obtained from the use of this Vitrol, which has now been used for upwards of 50 Years. References given to Gas Companies.

SULPHURIC ACID for Sale, specially
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BROTHERTON AND CO., LTD., Chemical Manufacturers.
Works: BIRMINGHAM, LEEDS, WAKEFIELD, and SUNDERLAND.

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MEADE-KING, ROBINSON, & CO.
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It is also used for the Enrichment of Gas, and has an illuminating value double that of 90 per cent. Benzol.
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(NATURAL.)
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BALE'S FIRE CEMENT.
PAINT FOR GAS-WORKS.

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SULPHURIC ACID.

SPECIALLY prepared for the Manu-
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SPENCER CHAPMAN & MESSEL, LTD.,
with which is amalgamated WM. PEARCE & SONS, LTD.
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Telephone: 341 AVENUE.

AMMONIA.
Consumers in any form are invited to correspond with CHANCE AND HUNT, LTD., Chemical Manufacturers, OLDBURY, WORCS.

COLLECTION.—Member of Staff of large
Suburban Company desires CHANGE to Country or Seaside. Thoroughly understands procedure in Magistrates' Courts and County Court work. All round Experience. Could Take Charge.
Address No. 4912, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED by an Engineer calling upon
Gas Companies, Corporations, Councils, &c., REPRESENTATION of Specialities that will not clash with Public Lighting Matters. Commission and part expenses or Commission only. First-Class Connection.
For Districts Covered and further Particulars address No. 4912, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

GAS Engineer desires Engagement as
MANAGER or ASSISTANT. Trained in Large Works and has had Entire Control of Small Works. Thorough knowledge of Inclined and Horizontal Retorts, Carburetted Water Gas, and Sulphate of Ammonia. Excellent Testimonials.
Address No. 4910, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, General Assistant to
Manager. Good, Practical all-round Man well up in Manufacture and Distribution.
Apply, stating Salary and further Particulars, to J. H. SILCOX, Gas Engineer, PONTARDAWE.

AGENT wanted calling upon Gas-
Works. Commission. Splendid side line for the right man.
Address No. 4908, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

A GAS-STOVE Manufacturing Company
require an Experienced REPRESENTATIVE for the Northern District.
Applications, by letter only, stating Age and Qualifications, to No. 4906, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, a Representative, calling
on Gas Companies in Wales, the Midlands, and the North, to push COMPO PIPE, ENGINE OILS, &c. Good Connection absolutely necessary. Commission or otherwise.
Apply to No. 4905, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

MECHANIC AND BLACKSMITH.

THE City of Waterford Gas Company
require, at once, a thoroughly Competent MECHANIC, accustomed to Lathe Work, and General Repairs to Machinery, Pumps, &c., in a medium-sized Gas-Works.
Apply, in own handwriting, stating Age, Experience, whether Married or Single, and Wages required, to Mr. J. G. TOOMS, Gas-Works, Waterford, IRELAND.

URBAN DISTRICT COUNCIL OF OSWALDTWISTLE.

GAS-WORKS CLERK AND BOOK-KEEPER.

THE above-named Council invite Ap-
plications for the Appointment of CLERK and BOOK-KEEPER at their Gas-Works. Salary 25s. per week. Office hours 7 a.m. to 5.30 p.m.; Saturdays, 7 a.m. to 12 noon. Applicants must possess a Practical Knowledge of Book-Keeping. Previous Experience in the Office Department of a Gas-Works, including Shorthand and Typewriting, is desirable.
Applications, in Candidates Handwriting, stating Age, present Employment, and accompanied by *copies* of not more than Two recent Testimonials, which will *not* be returned, must be delivered to me, endorsed "Gas-Works Clerk," on or before Wednesday, the 26th inst.
Canvassing in any form will disqualify.
B. T. WESTWELL,
Clerk to the Council.
Town Hall, Oswaldtwistle,
Feb. 14, 1908.

PURIFIERS—We have several Sets in
Stock, including Two 20 feet square Boxes, to Two Sets 6 feet square. Prices on Application.
FIRTH BLAKELEY, SONS, AND COMPANY, LIMITED, Thornhill, DEWSBURY.

ROBERT DEMPSTER & SONS, Ltd.,
Contractors for Complete CARBONIZING PLANTS and every description of GAS APPARATUS and ELEVATING and CONVEYING PLANT, ROSE MOUNT IRON-WORKS, ELLAND.

GASHOLDERS—Splendid overhauled GASHOLDERS, from 60,000 to 2000 cubic feet capacity, in stock. Overhauled and Erected in new STEEL TANKS at a low price, as we are overstocked.
FIRTH BLAKELEY, SONS, AND COMPANY, LIMITED, Thornhill, DEWSBURY.

PRODUCER Gas Plants—150 and 300 H.P. GAS-PRODUCING PLANT, complete with Gas-Engines, Gasholders, and Carburetting Plant for Lighting Purposes. Delivered and fixed equal to new. Prices, Plans, and Particulars on Application.
FIRTH BLAKELEY, SONS, AND COMPANY, LIMITED, Thornhill, DEWSBURY.

EXHAUSTERS—One set of Waller's Patent Three-Blade Combined with Steam-Engine, overhauled and perfect, to pass 15,000 and 20,000 cubic feet per hour. Also sets in stock for 2000 to 10,000 cubic feet per hour. Photos, Prices, &c., on Application.
FIRTH BLAKELEY, SONS, AND COMPANY, LIMITED, Thornhill, DEWSBURY.

KING'S TREATISE ON COAL GAS.
THREE Volumes for Sale, bound in Leather (One in Red Calf, and Two in Brown Morocco), Cloth sides. In Good Condition, and Perfect. WHAT OFFERS?
Address No. 4911, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

CITY OF CARLISLE.

TENDERS FOR THE PURCHASE OF TAR.

THE Gas Committee are prepared to receive TENDERS for the Purchase of the Surplus Coal and Water Gas TAR to be produced at their Works for a period of One Year from March 31 next.
Tenders, endorsed "Tar," and addressed to the Chairman of the Gas Committee, to be delivered at the Office of the Town Clerk not later than Monday, March 2, 1908.
Further Particulars on Application to the undersigned.
The Committee do not bind themselves to accept the highest or any Tender.

W. J. SMITH, B.Sc.,
Engineer and Manager.

Gas-Works, Carlisle,
Feb. 12, 1908.

CITY OF CARLISLE.

TENDERS FOR GAS OIL.

THE Gas Committee are prepared to receive TENDERS for the Supply of 1000 to 1200 Tons of GAS OIL for the Manufacture of Carburetted Water Gas, during a period of One, Two, or Three Years, at the option of the Contractor, from March 31 next.
Tenders, endorsed "Gas Oil," and addressed to the Chairman of the Gas Committee, to be delivered at the Office of the Town Clerk not later than Monday, March 2, 1908.
Forms of Tender and other Particulars on Application to the undersigned.
The lowest or any Tender will not necessarily be accepted.

W. J. SMITH, B Sc.,
Engineer and Manager.

Gas-Works, Carlisle,
Feb. 12, 1908.

CITY OF CARLISLE.

TENDERS FOR OXIDE OF IRON.

THE Gas Committee are prepared to receive TENDERS for the Supply to their Works of about 200 Tons of OXIDE OF IRON for Gas Purification.
Delivery to be made over a period of One Year from March 31 next.
Tenders, endorsed "Oxide of Iron," to be addressed to the Chairman of the Gas Committee, and delivered at the Office of the Town Clerk, not later than Monday, March 2, 1908.
Further Information may be had on Application to the undersigned.
No pledge is given for the acceptance of the lowest or any Tender.

W. J. SMITH, B.Sc.,
Engineer and Manager.

Gas-Works, Carlisle,
Feb. 12, 1908.

COUNTY BOROUGH OF WEST BROMWICH.
(GAS DEPARTMENT.)

TO GASHOLDER MAKERS.

THE Gas Committee are prepared to receive TENDERS for the Construction of an ADDITIONAL LIFT to one of their GASHOLDERS at the Albion Gas-Works.
Drawings and Specifications may be seen, and any other Information obtained, on Application to the Engineer, Mr. Harold E. Copp, at the Gas-Works, Albion, West Bromwich.
Sealed Tenders, addressed to the Chairman of the Gas Committee, to be delivered or sent to me at the Town Hall, not later than the 7th of March next.
The Gas Committee do not bind themselves to accept the lowest or any Tender.

By order,
THOS. HUDSON,
Secretary.

Town Hall, West Bromwich,
Feb. 15, 1908.

CITY OF DUBLIN.

THE Corporation of Dublin are pre- pared to receive TENDERS for the Supply of MANTLES and 6-inch JENA CHIMNEYS for Street Lighting for the ensuing Year to the 31st of March, 1909.
Samples of at least Six of each to be forwarded to the Town Clerk, City Hall, Dublin (the Tenders to be enclosed in a sealed envelope), marked "Tender for Incandescent Goods," and addressed to the Chairman of the Supplies Committee, City Hall, Dublin, and forwarded on or before the 25th inst.

By order,
HENRY CAMPBELL,
Town Clerk.

Town Clerk's Office,
City Hall, Dublin, Feb. 15, 1908.

COUNTY BOROUGH OF SALFORD.
(GAS DEPARTMENT.)

THE Gas Committee invite Tenders for the Purchase of about 200 Tons of SPENT OXIDE.
Further Particulars and Form of Tender may be obtained on Application to Mr. William W. Woodward, Engineer, Gas Offices, Bloom Street, Salford.
Sealed Tenders, endorsed "Tender for Oxide," addressed to the Chairman of the Gas Committee, Town Hall, Salford, to be delivered to me not later than Three p.m., on Thursday, the 27th of February, 1908.

L. C. EVANS,
Town Clerk.

Town Hall, Salford,
Feb. 12, 1908.

TO ENGINEERS AND IRONFOUNDERS.

THE Gas Committee of the Coventry Corporation invite TENDERS for the Supply and Erection, at their Foleshill Works, of a CAST-IRON COVERED TANK, 37 feet by 17 feet by 5 feet deep, with GIRDERS to support same.
Form of Tender, with Schedule of Quantities, Specification, and General Conditions, and Print of Drawings, will be Supplied on Application to the undersigned, and on Payment of Half-a-Guinea, which will not be returned.
The Committee do not bind themselves to accept the lowest or any Tender.
Tenders to be addressed to the Chairman of the Gas Committee, Gas-Works, Coventry, and delivered, sealed, on or before Nine a.m. Monday, the 24th inst.

FLETCHER W. STEVENSON,
Engineer and General Manager.

Gas-Works, Coventry,
Feb. 12, 1908.

TO ENGINEERS AND IRONFOUNDERS.

THE Gas Committee of the Coventry Corporation invite TENDERS for the Supply and Erection, at their Foleshill Works, of a LIVESEY WASHER, of a capacity for 4 Million Cubic Feet per diem.
Form of Tender, with General Conditions and Print of Drawing, will be Supplied on Application to the undersigned, and on payment of 5s., which will not be returned.
The Committee do not bind themselves to accept the lowest or any Tender.
Tenders to be addressed to the Chairman of the Gas Committee, Gas-Works, Coventry, and delivered, sealed, on or before Nine a.m. Monday, the 24th inst.

FLETCHER W. STEVENSON,
Engineer and General Manager.

Gas-Works, Coventry,
Feb. 12, 1908.

URBAN DISTRICT OF NEWTON-IN-MAKERFIELD.

TENDERS FOR SUPPLIES.

NOTICE is Hereby Given, that the Urban District Council of the above-named District are prepared to receive TENDERS from persons willing to Contract for the Supply of the following MATERIALS for One Year, commencing the 1st of April, 1908—viz. :—

1, 2, and 3—Wrought-Iron Steam Tubes and Fittings.
4—Main Cocks, Ferrules, Plug Stop-Cocks, Ingot Tin, Pig Lead, Lead Gas and Water Pipe, Yard Brushes, and Shovels.
5—Round, Flat, Square, and Sheet Iron.
6—Oxide of Iron, Brown Vitriol, Disinfecting Powder and Fluid, Oil, Rubber Pump Valves, and Joint Rings.
7—Incandescent Burners and Mantles, Gas-Burners, Street-Lanterns, Rubber Tubing, Pattresses, Pendants, and Brackets.
8 and 9—Cast-Iron Main Pipes, Special Pipes and Castings, Sluice Valves, Water-Meters, Cast-Iron Hydrants, Valves, Meter and Stop-Tap Boxes.
10—Ordinary and Prepayment Gas-Meters.
11—Fire-Clay, Buxton Lime, and Portland Cement.
12—Hay, Straw, and Provender for Horses.
13—Granite Macadam (2-inch and 1½-inch); ¼-inch Granite Chippings, 4-inch Granite Paving Setts, Gritt Paving Setts (4-inch and 6-inch); Concrete Flags (straight and radius); Kerb-stones (straight and circular); Stoneware Pipes, Scavengers Brooms, Spades and Shovels, Cast-Iron Street Gulleys and Manhole Covers.

To be delivered free of expense within the district.
Printed Forms of Tender may be obtained from the Stores Clerk, Gas-Works, Earlestown, between the hours of Nine and Five; Saturdays, Nine and Twelve.
No Tender will be considered unless made strictly in accordance with and on one of the printed Forms issued, and the same must be Sealed and Delivered to me at the Town Hall, Earlestown, before Twelve o'clock noon on Saturday, the 29th of February, 1908, after which no Tender will be received.
The Council do not bind themselves to accept the lowest or any Tender.

By order,
C. COLE,
Clerk to the Council.

Town Hall, Earlestown,
Lancashire, Feb. 14, 1908.

TENDERS FOR TAR.

THE Directors of the Exeter Gaslight and Coke Company invite TENDERS for their Surplus TAR for Twelve Months from the 25th of March next, at per Ton of 200 Gallons, delivered into Contractor's Tanks at the Company's Works.
Sealed Tenders, endorsed "Tender for Tar," will be received by the undersigned on or before Saturday, the 8th of March next; but the Directors do not bind themselves to accept the highest or any Tender.

By order,
W. A. PADFIELD,
Engineer and Secretary.

Feb. 14, 1908.

URBAN DISTRICT COUNCIL OF TYLDESLEY-WITH-SHAKELEY.

TO FIRE-BRICK MANUFACTURERS, &c.

THE Gas Committee are prepared to receive TENDERS for the RESETTING (including all Materials) of one Through Bed of Seven RETORTS.
Specifications and all Particulars may be obtained on Application to the undersigned.
Sealed Tenders, endorsed "Retorts," to be delivered to W. G. Matthews, Esq., Clerk to the Council, Tyldesley, on or before Tuesday, March 3, 1908.
The Committee do not bind themselves to accept the lowest or any Tender.

H. R. S. WILLIAMS,
Engineer and Manager.

Gas and Water Works,
Tyldesley, near Manchester,
Feb. 11, 1908.

BOROUGH OF TIVERTON.

THE Gas Committee invite Tenders for the Supplying and Erecting of the following NEW PLANT on their Foundations :—

One Telescopic GASHOLDER in STEEL TANK, 63 ft. 6 in. Diameter and 20 ft. 6 in. Deep.
One 15,000 Cubic Feet per Hour STATION METER.
One 12-inch Simpson, Parkinson, or Braddock STATION GOVERNOR.
One Thompson, Galloway, or Adamson STEAM-BOILER, 15 ft. by 5 ft.
One Tangye, Appelby, or Marshall STEAM-ENGINE.
One Evans, Robey, or Worthington STEAM-PUMP, and all necessary Bye-Pass Valves and Connections for above.

Preference will be given to the Contractor who can carry out the whole of the work.
For Full Particulars apply to the Manager, Gas-Works, Tiverton.
Sealed Tenders to be delivered not later than Twelve o'clock noon on Monday, the 2nd of March next, addressed to the undersigned and endorsed "Gas Apparatus."
The Committee do not bind themselves to accept the lowest or any Tender.

C. M. HOLE,
Town Clerk.

Town Hall, Tiverton,
Feb. 4, 1908.

THE CRAYS GAS COMPANY.

NOTICE is Hereby Given, that the ORDINARY GENERAL MEETING of the Stockholders of the above Company will be held at the Library, St. Mary Cray, on Wednesday, the 26th day of February, 1908, at 6.30 o'clock in the evening, to receive and adopt the Directors' Report and Accounts for the Half Year ended the 31st day of December, 1907; to elect a Director and an Auditor; and for General Business.
The TRANSFER BOOKS WILL BE CLOSED from the 13th day of February next until after the said Meeting.

W. B. MIMMACK,
Secretary.

Gas-Works, St. Mary Cray,
Feb. 7, 1908.

ENFIELD GAS COMPANY.

NOTICE is Hereby Given, that the HALF-YEARLY ORDINARY GENERAL MEETING of the Proprietors of this Company will be held at the Offices of the Company, Sydney Road, Enfield, on Thursday, the 27th day of February inst., at 5.30 o'clock in the evening precisely, to receive the Report of the Directors and the Accounts of the Company for the Half Year ended the 31st December last; to declare a Dividend; to elect Directors, Chairman, and an Auditor; and to Transact the General Business of the Company.
The TRANSFER BOOKS WILL BE CLOSED from the 14th to the 27th of February, both inclusive.

By order,
CHAS. W. OFFORD,
Secretary and General Manager.

Enfield, Feb. 6, 1908.

SUNDERLAND AND SOUTH SHIELDS WATER COMPANY.

IMPORTANT SALE OF WATER STOCK.

TO BE SOLD by Auction in the Long Room of the Queen's Hotel, Fawcett Street, Sunderland, on Thursday, Feb. 20, 1908, at Two o'clock in the Afternoon prompt,

Mr. ATKINSON GIBSON, Auctioneer,

20,000

(Nominal) of Additional ORDINARY CAPITAL STOCK (Maximum Dividend 5 per cent.) authorized to be Created and Issued under the powers contained in the Sunderland and South Shields Water Act, 1891.
The above Stock will be entitled to Dividend from the 1st day of January, 1908, and be registered in the name of the Purchaser *free of charge*.
A deposit of 10 per cent. will be required at the time of Sale; the remainder to be paid on or before the 29th day of February, 1908.